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[ORIGINAL COMMUNICATION.]

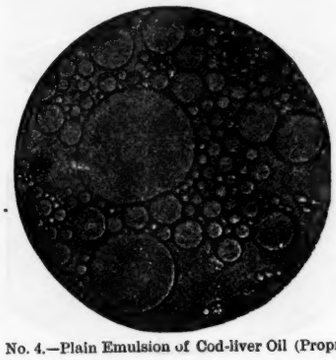
MICROSCOPIC VIEWS OF SOME COD-LIVER OIL EMULSIONS.*

SINCE the publication of the New York and Brooklyn Formulary, in which a concentrated or stock-emulsion was proposed from which plain or compound emulsions may be made by proper dilution, more than usual attention has been given to the study of this kind of preparations, and various modifications have been devised or recalled to memory which are supposed to yield particularly good results. Mr. Henry Schmid, a member of the committee, while experimenting with some of these formulæ, was fortunate enough in obtaining the aid of one of his medical friends, Dr. Francis A. Brodsky, who prepared microphotographic views of a number of them, which are here reproduced. It was not intended to make an exhaustive comparison of all the commercial emulsions of cod-liver oil, or even of the products obtained by the various published formulæ. Only those were photographed which the object of the investigation required to be taken in hand.

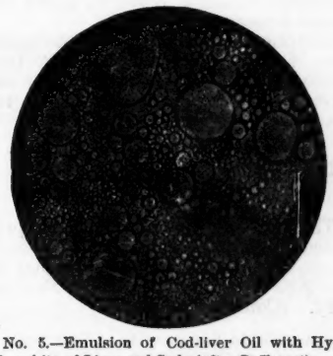
No. 1.—Pancreatic Emulsion of Cod-liver Oil (Proprietary).

No. 2.—Plain Emulsion of Cod-liver Oil (after DeForest).

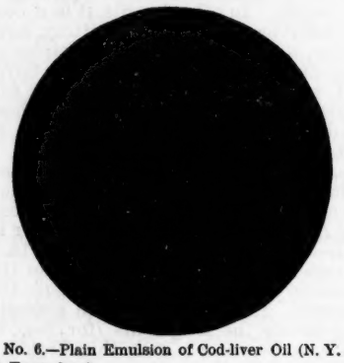
No. 3.—Emulsion of Cod-liver Oil with Hypophosphite of Lime and Soda (Proprietary).



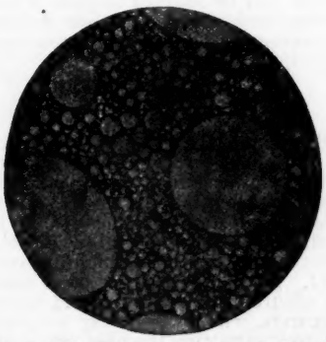
No. 4.—Plain Emulsion of Cod-liver Oil (Proprietary.)



No. 5.—Emulsion of Cod-liver Oil with Hypophosphite of Lime and Soda (after DeForest).



No. 6.—Plain Emulsion of Cod-liver Oil (N. Y. & B. Formulary).



No. 7.—Plain Emulsion of Cod-liver Oil (Proposed improvement of formula in N. Y. & B. Formulary).

No. 8.—Pancreatic Emulsion of Cod-liver Oi (Proprietary).

No. 1. *Pancreatic Emulsion of Cod-Liver Oil.*

Scale $\frac{1}{200}$ of an inch.

This is a proprietary emulsion, in considerable demand, and is said to be prepared after the following formula:

Cod-Liver Oil.....	8 fl. oz.
Extract of Malt.	8 "
Pancreatin.....256	gr.
Oil of Gaultheria	32 ♏
Oil of Cinnamon.....	16 ♏
Alcohol	4 fl. dr.
Syrup of Hypophosphites (U. S.), enough to make.....	32 fl. oz.

Beat the Extract of Malt in a mortar until it can be drawn into strings, add the Pancreatin, and mix thoroughly. Then add the Cod-Liver Oil in small quantities at a time and beat until a smooth mass results. Add the Alcohol and essential Oils, and gradually incorporate the Syrup by trituration.

Much difficulty was encountered in getting sharp definitions of the oil globules under the lens, for photographic purposes. This was particularly difficult in the present case. The minute oil globules being imbedded in a mixture consisting partly of extract of malt, prevented a distinct focus or the attainment of sharply defined outlines. Osmium vapor had to be resorted to, to darken the oil globules.

On comparing the microscopic view of this emulsion with the others, it will be seen that it appears more perfect than any.

No. 2. *Emulsion of Cod-Liver Oil.*

Scale $\frac{1}{200}$ of an inch.

This emulsion was prepared after the formula given by Mr. Wm. P. DeForest, of Brooklyn.

Cod-liver Oil.....15	fl. oz.
Acacia, in fine powder... 3	tr. oz.
Sugar, in fine powder... 6	tr. oz.
Oil of Gaultheria. ..90	♏
Water enough to make..30	fl. oz.

Place the Acacia, Sugar, Oil of Gaultheria, and Cod-Liver Oil into a large mortar, then add at once 8 fl. oz. of water. By means of a vaginal syringe mix the whole thoroughly until it is completely emulsified. Then add, at once, enough water to make 30 fl. oz.

Considerable care and labor was bestowed upon the proper manipulation of this emulsion. Nevertheless, as will be noticed from the cut, some large oil globules are still visible in the field.

No. 3. *Emulsion of Cod-Liver Oil with Compound Syrup of Hypophosphite of Lime and Soda.*

Scale $\frac{1}{200}$ of an inch.

This emulsion is put on the market by a Philadelphia house, but the formula is not known.

The oil is evidently not properly subdivided, there being numerous more or less large oil globules scattered through the field.

* Chiefly from materials supplied by Mr. Henry Schmid and Dr. Francis A. Brodsky, of New York

No. 4. *Emulsion of Cod-Liver Oil.*

Scale $\frac{1}{100}$ of an inch.

This is another popular emulsion, made by a Philadelphia house. The formula is unknown. It is claimed to contain 50 per cent of cod-liver oil.

It is evidently a very imperfect emulsion, the oil globules being quite large and prominent.

No. 5. *Emulsion of Cod-Liver Oil with Hypophosphite of Lime and Soda.*

Scale $\frac{1}{100}$ of an inch.

This is prepared by the same process as No. 2, with the addition of two drachms, each, of the hypophosphites of calcium and sodium to the first portion.

In this case the result is about the same as in the simple emulsion.

No. 6. *Emulsion of Cod-Liver Oil.*

Scale $\frac{1}{100}$ of an inch.

This is prepared after the formula published in the New York and Brooklyn Formulary. (Compare No. 7.)

Acacia, in fine powder...	2 av. oz.
Sugar, in fine powder....	4 " "
Cod-liver oil	16 fl. oz.
Oil of Sassafras.....	30 ♏
Oil of Wintergreen.....	30 ♏
Water enough to make...	32 fl. oz.

Mix the Acacia and Sugar with the Cod-Liver Oil in a dry mortar, and add 8 fluidounces of Water. Then triturate thoroughly and continuously, until the oil is emulsified, and finally incorporate enough Water to make the product measure two pints.

The photograph shows that the emulsion, though made carefully by this process, is apt to be imperfect, the oil having a strong tendency to run together.

No. 7. *Emulsion of Cod-Liver Oil.*

Scale $\frac{1}{100}$ of an inch.

This is made after a formula, proposed by Mr. Theodore Louis, of New York, as an improvement on that of the New York and Brooklyn Formulary. (Compare No. 6.)

Acacia, in fine powder..	3 av. oz.
Sugar, in fine powder...	2 "
Glycerin.....	2 fl. oz.
Cod-Liver Oil.....	16 "
Oil of Sassafras.....	30 ♏
Oil of Wintergreen	30 ♏
Water, enough to make..	32 fl. oz.

Mix the Acacia with 4½ fl. oz. of Water in a capacious dry mortar until a smooth paste is formed, and incorporate with this, gradually and under constant trituration, 6 fl. oz. of the Cod-Liver Oil, until the latter is perfectly emulsified. Mix with this the 2 oz. of Sugar and then add, gradually and under constant trituration, alternate portions of the remaining 10 fl. oz. of Cod-Liver Oil, and a mixture of the 2 fl. oz. of Glycerin with 3 fl. oz. of Water, in quantities of about 2 fl. oz. or 1 fl. oz. at a time. Lastly, add the essential oil, and enough water to make 32 fl. oz.

The photograph shows that even this is not a perfect emulsion, though it is an improvement on the preceding. As will be noticed there are large bullæ of oil scattered through the field.

No. 8. *Pancreatic Emulsion of Cod-Liver Oil.*

Scale $\frac{1}{100}$ of an inch.

This is likewise a proprietary emulsion. The reputed formula is as follows:

Cod-Liver Oil	80 minims.
Pancreatin, soluble...	5 grains.
Soda.....	½ grain.
Boric Acid.....	¼ "
Hyocholic Acid	$\frac{1}{10}$ "
Distilled Water.....	35 minims.

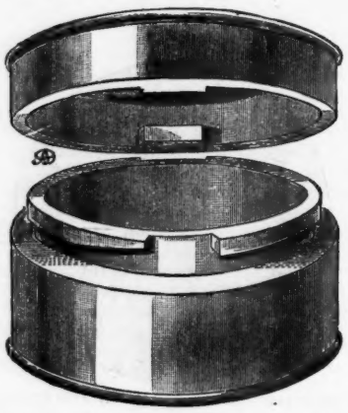
In this case, the confluency of the oil is also well marked.

Note of Ed. Am. Drugg.—The preceding views demonstrate the fact that there is still room for considerable improvement in the preparation of emulsions. After all, the old-fashioned method, in which the proportions are: Oil 4, Gum 2, Water 3, appears to furnish the most reliable results. But the object of most of the proposed modifications has been to shorten the time and labor requisite for attaining the desired end, particularly when larger quantities of emulsion are to be prepared. It remains to be seen whether some of these modified processes will not succeed better if a more thorough mechanical combination can be brought about.

There is, however, something to be said in favor of several of the emulsions figured above, though they may not show so well under the microscope. After all, the best practical test of an emulsion is its keeping quality, and its readiness to be restored to an apparently stable condition by shaking. In this respect the two formulæ proposed by Mr. De Forest and Mr. Louis are quite satisfactory.

LOCK-COVERED OINTMENT BOXES.

An English firm have lately introduced a contrivance for securing the tops of pots used for ointments,



tooth-powders, and similar articles, which can be adapted to glass or porcelain, and which possesses decided advantages. The engraving renders a description unnecessary.

Saccharin.

Saccharin, the new coal-tar derivative which is sweeter than sugar, and is yet neither a food nor a poison to man, so that it may be used by diabetics for sweetening dishes, is, in its chemical constitution, an acid; it is anhydrous orthosulphaminbenzoic acid. As it has so ponderous a name by nature, the discoverer and manufacturers, who by the way are very dilatory in putting the new drug on to the market, did wisely to give it a short and simple trade name. It is well, however, to remember that the substance has an acid constitution; for, as Dr. L. Wolff has pointed out in a paper read at the Philadelphia County Medical Society, it can be used to combine with alkaloids; with quinine, for instance, it forms a sulphaminbenzoate of quinine, the bitter taste of the alkaloid being almost completely masked.

Keeping Drugs in Drawers.—For the preservation of drugs stored in drawers, they should be first inclosed in boxes and then placed in a drawer provided with a perforated false bottom, under which quicklime or dried oatmeal is spread and occasionally renewed.—*Brit. and Col. Druggist.*

[Original Communication.]

FLUID EXTRACT OF SQUILL.

BY J. U. LLOYD.

This is one of the new fluid extracts of the Pharmacopœia of 1880, and the formula is evidently devised to meet the requirements of a trade demand. That such a preparation is necessary from this view alone, I think all will admit who aim to supply such preparations as are asked for by dealers in drugs, and even physicians prescribe it. Accepting, therefore, that an endeavor to furnish a formula which will render the preparation uniform prompted the committee to introduce it, and not arguing for or against the judiciousness of their course, I will consider a few of the points that have suggested themselves during an experience that has long antedated the pharmacopœial process, and that extends perhaps even from the time when fluid extract of squill was scarcely called for in general commerce.

The powdering of *prime squill* is almost an impossibility with pharmacists, and I expect that few persons will take issue with this statement. *Prime* squill is tough and moist; it cannot be pulverized. The pharmacist, as a rule, has no convenience for drying it, and if he should be so successful as to dry it, a hard horny substance remains that cannot be powdered by ordinary methods. Hence it is that the first step in following the U. S. P. process is really out of reach of most pharmacists. If we examine the pulverized squill of commerce, we often find it to possess an odor reminding us of burnt crackers or burnt flour. If the powdered squill is nice and white, the price is too often so excessive that we can better afford to use the fluid extract of squill of the firm that powdered it. Admitting that it is reasonable in price, excellent in quality, and that it has not solidified in the container, we reach the next step in the process.

Squill in No. 20 powder is required by the pharmacopœia; alcohol of specific gravity 0.820. This strength of alcohol was evidently selected to avoid the gumming that would follow the use of diluted, although it is not demonstrated, I think, that strong alcohol will dissolve the active principles of squill. In other words, it is a convenient menstruum. Admitting, however, that the medicinal principles of squill are soluble in alcohol (the *bitter* of squill certainly is), it does not follow that alcohol will exhaust these substances from squill in No. 20 powder. It is found that such a powder resembles a mass of sand, and that the alcohol used in percolation passes *around* the small pieces instead of *through* them. It has no power to dissolve the horn-like mucilage that makes the mass of squill, but, on the contrary, contracts and hardens the pieces. Therefore, as it can scarcely penetrate the fragments (for No. 20 powder is scarcely more than broken), it is obvious that a large share of the peculiar squill products are still enveloped in their horny bed after the process of percolation. It is my opinion that if strong alcohol is employed in making this fluid extract, the squill should be in the form of a *very fine powder.*

Will strong alcohol exhaust squill?—In the year 1875, I percolated fifty pounds of fine ground squill in a cylindrical percolator, passing two hundred pints of alcohol through it. The final percolate was colorless and tasteless. Then the material within the percolator was removed, moistened with water, and, after it had been softened, was placed in a still, covered with alcohol, and heat applied. The distillate was returned to the still as it condensed. After one hour, the heat was suspend

ed, and when cool enough, the magma was removed from the still and squeezed. To all sensible tests this liquid was as characteristic of squill as the original percolate, after both had been brought to the same bulk. The man who scooped the warm magma from the still suffered from a severe irritation of the skin of the exposed portion of his arm, that nearly produced blisters. That in this instance the acrid principles were not extracted by percolation with alcohol is evident, and from the result of other investigations I am led to doubt if alcohol is a menstruum to be commended.

Diluted Acetic Acid as a Menstruum.—Comparing the advantages and disadvantages of many formulas and propositions as to manipulation and product, I am most favorably inclined to diluted acetic acid and maceration as the best method to exhaust the squill. It seems to make little difference whether the squill is powdered or crude. The result convinces me that the exhaustion is as perfect with sliced squill as with powdered. The sliced squill has the advantage of looseness, and permits the free circulation of the liquid during the act of maceration without forming a musty magma, and the liquid is finally extracted by means of a combination screw and knuckle joint.

In comparing an alcoholic tincture or fluid extract of squill with a preparation made as I suggest, which is in reality vinegar of squill, it will be observed that in the alcoholic preparation the bitter principle preponderates, while in the acetic acid process the acrid principles seem to be characteristic. Indeed, vinegar of squill is not at all bitter, and this leads me to a consideration of the respective claims of

Alcohol and Diluted Acetic Acid as solvents for the active principles of squill.

Doubtless all that is known of the constituents of this familar drug will be found recorded in the Dispensatories and Pharmacographia. At least I have not been able to refer to any original work that has been overlooked by their authors. It is shown, and evidently acknowledged, that but little is known of the active principles of squill. Although a number of substances have been identified or indicated, none have been shown to be the active body. It seems probable that the principle that gives to squill its diuretic and expectorant properties is not the bitter substance to which the names *scillitin* and *skuleïn* have been given, and which is very soluble in alcohol, but which is evidently not dissolved by diluted acetic acid. Passing to the physiological investigations of Moeller and Jarmsted, we find that other substances, named *scillitoxin* and *scillin*, have properties analogous to digitalis, but altogether there is but little scientific evidence, I think, to demonstrate that either chemically or physiologically the peculiar proximate constituents of squill are actually known in separate condition. That this is accepted by leading medical authorities is shown by Prof. Roberts Bartholow's account of squill in his "Materia Medica," and the uses as given in the dispensatories. It will be found also that, as a rule, the medical profession prefers to use vinegar of squill or syrup of squill (which is made from the vinegar). We have but little, if any, evidence to support the claims of alcohol as an extracting agent. The usual preparation of the various pharmacopœias is a vinegar or syrup, and the position which squill occupies in therapeutics has been attained by the use of a non-alcoholic menstruum, either the vinegar or syrup. Therefore I argue that, exclusive of the objections to alcohol from the stand of the pharmacist (as previously stated), there is little to support it as a menstruum to make fluid extract of squill. It is evident that, if we consider the menstruum that has given the preparations of squill a therapeutical standing, we should use diluted acetic acid in exhausting squill. In doing so, in my opinion, we escape another objection—the bitterness of the fluid extract, as made with alcohol. I therefore believe that not only have we made a mistake in our officinal process, from a working standpoint, but also from a therapeutical point of view; for it is evident that the fluid extract of squill is designed to replace, in a concentrated form, the well-known vinegar and syrup of squill. It is painfully evident also that in many cases it is desired (or designed) to make vinegar and syrup of squill by dilution of the fluid extract.

Can Diluted Acetic Acid be Used to Make the Fluid Extract? In giving my views upon this subject, I will state that after a large number of experiments with menstruums of all descriptions, in large and small amounts, I favor the simple maceration of sliced squill in dilute acetic acid, extraction by pressure, and then evaporation by appropriate means to the bulk of *two fluidounces* for *each troy ounce* of squill used (or 2 C.c. for each gramme). To this syrupy liquid one-half its bulk of alcohol is added, and, after some days, the product is to be filtered. This produces a preparation having a syrupy consistence, an acid, slightly acrid (not bitter) taste, and a color that ranges from light amber to dark brown-red, in accordance with certain features of the evaporation that I shall consider in another paper of more general application.

Such a fluid extract will practically represent one-half of its bulk of squill, if the menstruum is, as I believe, the proper one, and if the heat has not destroyed the valuable constituents. In my opinion, there is little injury by the evaporation in such amounts as pharmacists are likely to prepare. In large quantities, special arrangements must be made for evaporation, in which connection I again call attention to a paper that bears upon this special subject.*

A STUDY OF THE U. S. PHARM. METHOD OF ASSAYING OPIUM.†

BY T. J. WRAMPELMEIER AND G. MEINERT.

THE U. S. Pharmacopœia gives the following process for the assay of opium, viz.: 7 Gm. of the drug are triturated with 3 Gm. of freshly slaked lime and 70 C.c. of water in a mortar. The mixture is then placed upon a filter, and 50 C.c. of filtrate taken to represent 5 Gm. of opium. To the 50 C.c. of filtrate are added 5 C.c. of alcohol, 25 C.c. of ether, and 3 Gm. of ammonium chloride, and the solution allowed to stand for twelve hours. The precipitated morphine is then filtered out, using counterpoised filter papers, dried at a temperature of 55°–60° C. and weighed. By multiplying the weight by 20, the per cent is obtained.

This method of assaying opium was first suggested by two French chemists, Portes and Langlois (1881: *Jour. de Pharm. et de Chim.*, NEW REM., 1882, 64). These chemists assumed that 53 C.c. of the filtrate must be taken to represent 5 Gm. of opium, whereas the U. S. P. process directs that 50 C.c. of the filtrate be taken as equivalent to 5 Gm. of opium. Mr. Convoy, in a paper read before the Br. Ph. Ass. (1884: *Pharm. Jour. Trans.* [3], 15, 473), claimed to have found by experiment (though he does not describe his experiment) that 52 C.c. must be taken to represent 5 Gm. of the drug, saying that these 2 C.c. must be allowed for increase of bulk due to the extractive matter dissolved by the water, and that, by taking 50 C.c. as the U. S. P. directs, a serious mistake was made.

In order to decide this point, namely, whether 50 C.c. or 52 C.c. of filtrate should be taken, it was necessary to ascertain whether the total liquid, that is the 70 C.c. of water plus the extractive matter dissolved thereby, was really more than 70 C.c.; for, if 52 C.c. have to be taken to represent 5 Gm. of the drug, the total liquid must be 72.8 C.c.

To this end the following experiments were made: 7 Gm. of powdered opium were taken, dried at 100° C. and transferred to a flask. A flask was used instead of mortar, in order to avoid loss by evaporation. 3 Gm. of freshly slaked lime and 70 C.c. of water were added, the whole thoroughly mixed and allowed to stand for half an hour. The mixture was then placed upon a filter and (instead of 50 C.c.) the liquid was drained off as much as possible by means of an aspirator. The filtrate was weighed, and its spec. gr. taken. In order to determine how much liquid there was left in the opium on the filter, the filter was weighed with the funnel, dried at 100° C. to constant weight, and again weighed. By multiplying the loss in weight by the spec. gr. of the filtrate, the weight of the liquid left in the opium was found. In the same manner, the weight of the liquid left in the macerating flask which could not be brought upon the filter was determined. The weight of total liquid was then found by adding to the weight of the filtrate the weight of liquid left in the opium on the filter, and that of the liquid left in the flask, and, from this the total volume, *i. e.*, the 70 C.c. plus the extractive matter dissolved thereby, was calculated by dividing by the specific gravity.

On working two samples of powdered opium in this way, the volume was found to be in the one case 70.83 C.c., and in the other it was 70.85 C.c.; whereas, according to Convoy, the volume should be 72.8 C.c. Since the U. S. P. directs to take opium in any form, it seemed possible that, if lump opium which contains some moisture be used, the volume of liquid might be increased. A sample of lump opium was taken which contained 11% of moisture. 7 Gm. were weighed off, cut into small pieces and transferred to a flask. Then the lime and 70 C.c. of water were added, the whole thoroughly mixed by means of a stirring rod until a uniform a mixture was obtained. The mixture was then allowed to stand for half an hour and finally placed upon a filter. The filtrate was weighed and its specific gravity taken, and the weight of the liquids left in the opium on the filter, and that of the liquid left in the flask, were calculated in the above-described manner. Experiments made with two samples gave the following results:

	Sp. Gr. of Filtrate.	Per Cent of Morph.	Total Liquid.
Exper. I.	1.01270	8.3%	70.39 C.c.
Exper. II.	1.01265	9.04%	70.19 C.c.
Average, ...			70.29 C.c.

This gave an average increase of 0.29 C.c. Then a very moist lump opium containing 20.7% moisture was used and the volume of liquid was found to be, in this case, 70.61 C.c. These experiments, therefore, would seem to

* See the paper "Evaporation of Percolates," read at the Providence meeting of the Am. Pharm. Assoc., and printed on page 186 of our last number.

† Read at the Meeting of the Michigan State Pharmaceutical Association, Grand Rapids, Oct. 14th, 1886.

prove that the volume of filtrate directed to be taken by the Pharmacopœia (50 C.c.) is more nearly correct than that directed by Mr. Convoy (52 C.c.).

In the paper of Mr. Convoy, attention is called to the fact that some morphine is held in solution by the mother liquor. Mr. Herbert Lloyd, in an article (AMERICAN DRUGGIST, 14, 221), also states that there is enough morphine held in solution to cause an error of 1.2% to 1.8%. He believed that the alkaloid is dissolved by the excess of ammonia which is set free when ammonium chloride is added. The reaction may be given by the following equation:

$$Ca(OH)_2 + 2NH_4Cl = CaCl_2 + 2NH_3 + 2H_2O.$$

He also says that morphine and lime are mutual solvents, that is, if morphine is added to lime-water, more lime will be taken into solution, and, hence, he comes to the conclusion that the greater the amount of morphine present in the opium to be assayed the

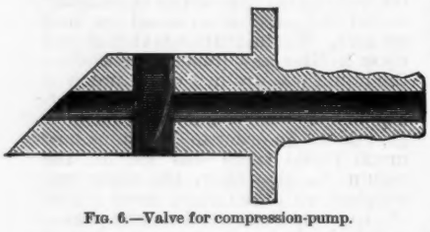


FIG. 6.—Valve for compression-pump.

greater will be the amount of lime and of ammonia set free, and as a result the greater the loss of morphine. Mr. Lloyd based this assertion upon the results of experiments made with weighed quantities of morphine, slaked lime, and ammonium chloride. He found that 50 C.c. of lime-water, in the presence of morphine, would dissolve 0.128 Gm. of $Ca(OH)_2$ or 0.095 Gm. of CaO.

In order to determine the amount of lime held in solution in an actual assay, the following experiments were made: The mother liquor of the 50 C.c. filtrate was acidulated with sulphuric acid, evaporated to dryness, and heated in a platinum dish, and the lime estimated as $CaSO_4$ which was calculated to CaO. In order to determine the relation between the proportion of morphine and amount of lime, a lump opium containing 7.88% of morphine, and for another experiment a powdered opium containing 11.4% of morphine, were used, and the following results obtained:

	AMOUNT OF MORPH. OBTAINED.	AMOUNT OF LIME (CaO).
Lump opium,	0.394 Gm.	0.202 Gm.
Powdered opium	0.570 "	0.231 "

So we see that the more morphine there is present, the greater is the amount of lime dissolved, and this experiment would seem to support Mr. Lloyd's statement with reference to the mutual solvent power of morphine and lime, although the increase in the amount of lime dissolved is not in the same ratio as the increase in the amount of morphine present. The amount of lime found to be present in the assay liquor, according to our experiments, is, however, about twice as large as the amount of lime contained in the 50 C.c. solution according to Mr. Lloyd, showing that other constituents of opium assisted in dissolving the lime, and it is not improbable that these constituents are present in varying proportions.

In order to determine now how much of the alkaloid is dissolved in the mother liquor after crystallizing the morphine, a solution was made to correspond as nearly as possible to the assay liquor, and then a certain amount of morphine was used. The amount of lime (CaO) found to be present in the mother liquor of the lump opium was 0.202 Gm. This amount of lime was taken, slaked with a little water, transferred to flask and 50 C.c. of distilled water were added. On adding then 0.500 Gm. of pure morphine, it was found that some of the lime was left undissolved. Therefore, in another trial, a little less calcium oxide was used, the 50 C.c. of water and 0.500 Gm. of morphine added. Then, as in the U. S. P. process, 5 C.c. of alcohol and 25 C.c. of ether, and 3 Gm. of ammonium chloride were added and the mixture allowed to stand for 12 hours. The amount of morphine obtained was 0.442 Gm., showing that of the 0.500 Gm. taken 0.058 Gm. was retained in solution in the mother liquor.

In order to find out whether the morphine is held in solution by the excess of ammonia liberated or by the excess of ammonium chloride, the following experiments were made. By calculation it was found that, when 0.202 Gm. of calcium oxide are in solution, 0.399 Gm. of ammonium chloride are decomposed. Subtracting this from 3 Gm., we find that in this case there is an excess of 2.61 Gm. of ammonium chloride present in the assay liquor. This amount of ammonium chloride was then dissolved in 50 C.c. of pure water and 0.500 gm. of morphine added, and the solution allowed to stand for 12 hours, after which time 0.500 Gm. of morphine had lost 0.135 Gm. The amount of ammonia which would be set free in such assay was also calculated, and a solution of 50 C.c. of pure water containing that amount of ammonia was found to dissolve after 12 hours' standing 0.110 Gm. of morphine. Thus it was shown that both ammonium chloride and free ammonia in solution exert a distinct solvent action upon the alkaloid. It is therefore probable that by using about 1.000 Gm. of ammonium chloride instead of 3.000 Gm. as suggested by Mr. Convoy, the amount of morphine held in solution will be greatly reduced.

There are one or two points in the detailed directions of the Pharmacopœia which, it seems to us, are open to criticism. The directions are to triturate the opium, lime, and water together, and leave the mixture in a *mortar* for half an hour. The evaporation of moisture from an open mortar, especially if the atmosphere happens to be dry, is not inconsiderable, and it is quite probable that the failure to obtain the desired amount of filtrate can be explained, in some cases, in this way.

The U. S. P. directs that the filtrate be collected in a wide-mouthed bottle or flask (having a capacity of about 120 C.c. and marked at 50 C.c.). If a flask be used, the 50 C.c. mark will be at the widest part and it would be an easy matter to make an error of 1 to 2 C.c. in graduating or in filling to the mark, as we found by repeated trials. In all of our experiments we used a *narrow* graduated cylinder to measure the filtrate.

Want of time has prevented us from continuing our experiments, but we offer the following conclusions as the result of our experiments.

1. The increase in volume by solution of extractive matter is not sufficient to warrant us in taking 52 C.c. of the filtrate as representing 5 Gm. of opium. The volume directed by the U. S. P. (50 C.c.) seems to be very nearly correct. At least it would require a large number of experiments to warrant us in changing that.

2. About 10% of the morphine in the opium is retained in the mother liquor after crystallizing the morphine according to the U. S. P.

3. Excess of either ammonium chloride or free ammonia increases the solubility of morphine in the mother liquor, and experiments should be made with a view to reducing the amounts of ammonium chloride and of lime.

4. The mixture of opium, lime, and water should *not* be allowed to stand in an open mortar, but might be made in a mortar if necessary and transferred to a stoppered flask or covered vessel of some kind to macerate.

5. The filtrate should *not* be measured in a bottle or flask, as directed by the U. S. P., but in a narrow graduated cylinder.

An Extraordinary Professorship of the Chemistry of Food is to be established in the University of Berlin.

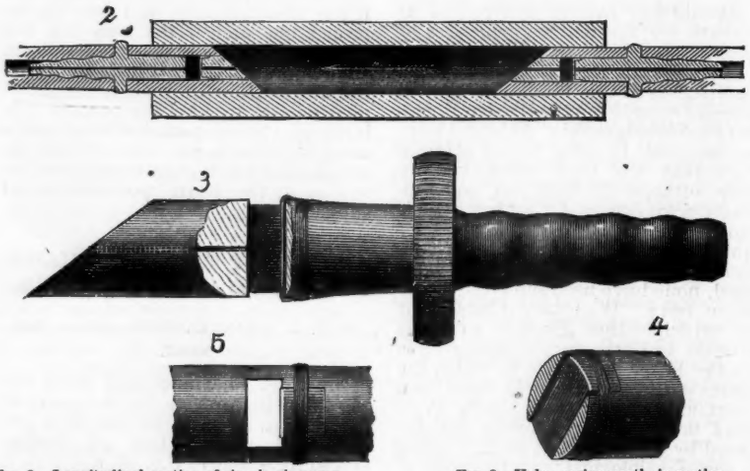


FIG. 2.—Longitudinal section of simple air-pump.
FIG. 4.—Transverse section showing valve in perspective.
FIG. 3.—Valve casing partly in section.
FIG. 5.—Plan view of valve.

INEXPENSIVE AIR-PUMP.

GEORGE M. HOPKINS describes, in a recent number of the *Scientific American*, a simple and efficient form of air-pump which can be constructed by any one who is at all adept in the use of tools, at an expense of a dollar and a half for materials. Mr. Hopkins especially intended the pump to be used for illustrating vacuum and plenum experiments, but it will be apparent at a glance that it is also equally capable of being used to hasten the operations of filtering and distilling on a small scale.

The materials required are as follows: A piece of so-called pure rubber tubing one and three-fourths inches external diameter, one inch internal diameter, and nine inches long; a piece of pure rubber tubing one inch external diameter, five-eighth inch internal diameter, and five inches long; a piece of heavy pure rubber tubing five-eighth inch external diameter, and four feet long; two wooden valve casings (shown in Fig. 3); a strip of the best oiled-silk, three-eighth

inch wide and eight or ten inches long; and some stout thread.

The piece of one-inch rubber tube is cut diagonally at an angle of about thirty degrees, so as to divide it into two similar pieces. The wooden valve casing is pierced longitudinally with a one-sixteenth inch hole and transversely with a hole one-half inch square, and thoroughly shellacked or soaked in melted paraffin to render it impervious to air. The longitudinal hole is cleared out, and the walls of the square transverse hole are smoothed. One of the walls of the square hole into which the one-sixteenth hole enters forms one valve-seat, and the other forms the other valve-seat. The valves each consist of two thicknesses of the oiled-silk strip stretched loosely over the valve-seat, and secured by the thread wound around the wooden valve casing. It will, of course, be understood that, when the valve casings are placed in the one-inch rubber tubing, and the one-inch tubes are placed in the ends of the larger tube, as shown in Fig. 2, the valves must both be capable of opening in the same direction, so that the air may pass through the pump as indicated by the arrow, entering by one valve and escaping by the other.

The pieces of rubber tube inclose the valve casings, so that each valve has a little air-tight chamber of its own to work in. The bevelled ends of the rubber-tube are arranged as shown in the engraving, and the inner ends of the wooden valve casings are bevelled to correspond, so that, when the large rubber tube is placed on the floor and pressed by the foot, there will be very little air space left in the pump. The four-foot rubber tube is attached to one end of the pump for vacuum experiments, and to the opposite end for plenum experiments. To avoid any possibility of the sticking of the valves, the valve-seats are rubbed over with a very soft lead pencil, thus imparting to them a slight coating of plumbago, to which the oiled-silk will not adhere. As an elastic rubber pump-barrel, of the kind described, requires considerable pressure of the foot to insure the successful operation of the pump, it is advisable to construct a treadle like that shown in Fig. 7. It consists of two short boards hinged together, the lower one having a shallow groove for the reception of the middle part of the pump. The edges of the upper board are bevelled at about the same angle as the ends of the one and one-fourth-inch rubber tube. The width of the hinged boards should be somewhat less than the length of the chamber in the pump. A mark is made on the side of the larger tube at one end to indicate the top, the proper position for the pump being that shown in Fig. 2.

The pressure of the foot on the side of the pump barrel expels the air through the discharge valve, and when the barrel is released, its own elasticity causes it to expand, and, while regaining its normal shape, it draws the air from any vessel communicating with the suction valve.

A vacuum sufficient for most of the ordinary experimental work may be produced by means of this pump in a short time. A gauge may be improvised by attaching the suction pipe to a piece of barometer tube about thirty inches long, and dipping the end of the tube in mercury, using a yard measure as a scale, as shown in Fig. 1. The pump will be found to compare favorably with piston pumps.

When it is desired to construct a pump of this kind for compressing air or for a low vacuum, the elastic tube forming the pump barrel may be larger and thinner, and the hole through the wooden valve casing may be made larger, as shown in Fig. 6, and the oiled-silk valve may be replaced by a simple rubber flap valve, held in place by a single tack.

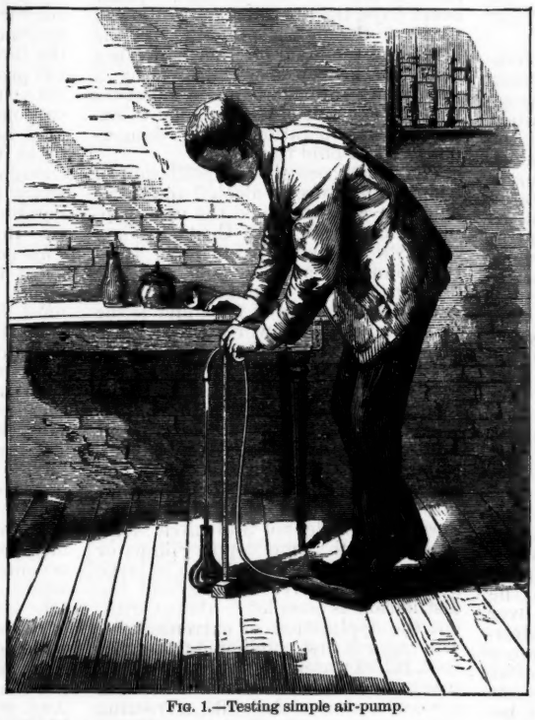


Fig. 1.—Testing simple air-pump.

A New Solvent of Urinary Calculi.

At a recent meeting of the French Therapeutical Society, a specimen of pichi, or piche, was shown by M. Limousin. In its native country (Chili) it was believed to disintegrate urinary calculi. M. Limousin expressed the belief that piche acted especially on the mucin which held together the different elements of calculi and dissolved it, and lessened vesical catarrh, a belief which, in consequence of the resin it contained, was shared and confirmed by M. Dujardin-Beaumetz. A fluid extract has been prepared, of which four dessertspoonfuls represent 30 Gm. of the plant—the dose generally administered in 24 hours.

[Pichi is a Chilean name applied to the bitter, resinous leaves of *Fabiana imbricata* R. et P., nat. ord. Solanaceæ. The name appears to have some connection with the name of a disease of sheep and goats, viz.: *pizguin*, in which it has long been used as a remedy.—Ed. Am. Dr.]

Piperonal. — Dr. Ricardo Frignani has published in the *Giornale delle Scienze Mediche* the results of a number of experiments which he has made with piperonal. He states that it possesses both antipyretic and antiseptic properties. The antipyretic effect is not of the most active or energetic kind, yet it is sufficient in many cases. According to the author, it is best given in fifteen-grain doses, repeated every two hours, or three or four times a day. The most noteworthy disagreeable effects are nausea, eructations, and dryness of the throat. Its antiseptic action appears much more marked, and it is believed that, in this respect, piperonal deserves a high rank among drugs of this class.

Piperonal is an aldehyde corresponding to piperonilic acid, and is obtained by the oxidation of piperine. It forms small, white, prismatic scales, possessing a strong odor of vanilla [or rather, of heliotrope, for which reason the substance is sold in the market under the name *heliotropin*.—Ed. Am. Dr.] A small quantity placed upon the tongue produces a sensation analogous to, but more persistent than that caused by mint. It melts at 125° F., and at a higher temperature volatilizes completely. When ignited, it burns with a flame and smoke like those of camphor. It is insoluble in cold water; in hot water it melts and looks like drops of oil. It dissolves readily in alcohol and in ether.—*Monthly Magazine.*

Vinegar as an Antiseptic.—Taking advantage of the known utility of vinegar as a preventer of decay in culinary processes, Dr. Engelman (*Cbl. f. klin. Med.*, 14, '86) has made a number of experiments with vinegar in diphtheria, and comes to the conclusion that it is a powerful antiseptic of almost specific effect in that disease. He employed either common vinegar or the officinal acetum, internally 1 : 4, as gargle 1:2, and undiluted, as spray 1 : 2 to 3, if applied with a brush, undiluted. An addition of 3 : 10 vinegar sufficed utterly to prevent the growth of micro-organisms. It is a special advantage that the taste is not disagreeable, and that, even when applied undiluted, there is no danger of any cauterizing or intoxicating effect.

The Birthplaces of Vegetables.—The *Popular Science News* says that peas are of Egyptian origin. Celery originated in Germany. The chestnut came from Italy. The onion originated in Egypt. The nettle comes from Europe. Tobacco is a native of America. The citron is a native of Greece. The pine is a native of America. Oats originated in North Africa. Rye originally came from Siberia. The poppy originated in the East. The mulberry originated in Persia. Parsley was first known in Sardinia. Spinach was first cultivated in Arabia. The sunflower was brought from Peru.

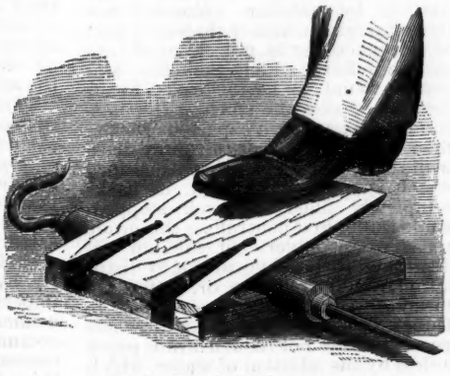


Fig. 7.—Treadle for air-pump.

The walnut and peach came from Persia. The horse chestnut is a native of Thibet. The cucumber came from the East Indies. The radish originated in China and Japan.

Female Drug Clerks in Holland.—In Holland ladies are gradually usurping the occupations of the pharmaceutical assistants. Out of a total of 55 candidates, 19 out of 31 female candidates, and only 8 out of 24 male candidates, were successful, in the recent State examination.

NOTES TO A FEW OF THE QUERIES.

BY H. T. CUMMINGS, M.D., PORTLAND, MAINE.*

Query 5. "*A preparation of commerce is now sold under the name of Concentrated Nitrous Ether. Is it possible to keep such a substance in order to prepare the spirit extemporaneously?*"

We believe that if the eminent firm of manufacturing chemists, whose offer upon the market of concentrated nitrous ether first attracted our notice, had looked before they leaped, we should not have this question offered for consideration.

Thirty years ago, Dr. Squibb communicated a paper to the *American Journal of Pharmacy*, in which, although in so many words not definitely expressed, he conveyed a doubt of the stability of the spiritus nitri dulcis, which would imply a still stronger doubt as to that of the concentrated nitrous ether. And this doubt seems to be confirmed by what we find in Gmelin's "Handbuch," iv., 763, where the decomposition of nitrous ether is especially considered.

This ether becomes acid by long standing in bottles filled, stoppered, and in those containing air. It is supposed that the combined nitrous acid becomes free nitric acid. According to Monheim, however, the acidification depends nearly upon absorbed nitric oxide, which has been changed into nitric acid by attraction of oxygen from the air. If, therefore, spiritus nitri dulcis (a mixture of nitrous ether and alcohol) is allowed to remain for a long time in contact with the air, or is shaken with it until it takes up no more oxygen, and is then freed from the developed acid by drawing it off over magnesia, it will not become acid afterwards. According to Stolz, the oftener spiritus nitri dulcis, treated after Monheim's way, is exposed to the air and neutralized by magnesia, it becomes constantly more feebly acid, because in this manner all the ether is gradually destroyed. According to Flashoff, spiritus nitri dulcis is rendered stable by several days' contact with manganese binoxide, the oxygen of which substitutes that of the air, and distillation over magnesia. But, according to Duflos, this spirit becomes acid unless it is dehydrated by distillation over calcium chloride. Brame also recommends this dehydration by calcium chloride; but Geiger doubts whether thereby a part of nitrous ether is not changed into chloric ether, which Schmidt and Duflos found to be the case; hence Schmidt shakes the spirit with potassium carbonate in a capacious bottle; then rectifies it over strongly-dried white bole, whereby a spirit is obtained which is stable when kept in flasks completely filled and well stopped; while Duflos first neutralizes this crude spirit with pulverulent calcium hydrate, and then dehydrates it by distillation over lime nitrate, or, better, potassium carbonate. According to Duflos, this spirit keeps for a whole year, and does not redden litmus paper unless by the addition of water, which provokes decomposition.

Gmelin's summary of this is: "perhaps acid is already present, which first exerts its reaction upon litmus by the addition of water. In this case, success has not been attained, and perhaps it never can be, to prepare a perfectly stable spiritus nitri dulcis."

We have never seen but one sample of the preparation in question, and that purported to be concentrated nitrous ether diluted with alcohol in the proportion of one in ten, ostensibly to protect it from oxidation. This experiment did not prove to be a success, for the acid was evident to the smell and taste, and strongly and instantly reddened litmus paper.

Gmelin describes seven different processes for preparing nitrous ether, each modified by one or more of twenty-six chemists, some of them the foremost names in Europe in this field. A review of some of them may not be uninteresting.

The first (and the second is like unto it, with a slight variation in proportion and manipulation) is described as follows: in a stout, well-corked and thoroughly-cooled flask fuming nitric acid is mixed with alcohol. After some days, the liberated gas is allowed to issue through a puncture in the cork, and the layer of ether which has risen to the top is withdrawn by a separating funnel. Gmelin observes that, on account of the liability to explosion, this operation is rather dangerous. We should think so.

The third consists of distillation of a simple mixture of alcohol and nitric acid. It appears to be the most popular of the seven, as of the twenty-six chemists quoted eleven have tried their hands upon it.

If our memory is not at fault, this is the U. S. process of 1870, and is the one which we have worked with tolerable success.

The fifth consists in adding to the mixture of acid and alcohol some deoxidizing constituent which will reduce the nitric to nitrous acid, without involving the expense of a pint of alcohol. In this process, E. Kopp's practice is clearly the best. He introduces into a distilling apparatus equal measures of alcohol and nitric acid, together with some copper filings or dippings. The reaction, even in large quantities, is never violent, and the distillation is completed almost without the application of extreme heat. The vapor is first conducted through a flask full of water, then through a long calcium chloride tube, is condensed in a receiver surrounded with a freezing mixture, as perfectly pure nitrous ether, free from aldehyde, and consequently not turning brown with potash.

We would answer the sixth query by another: Is there a concentrated nitrous ether directed in the Pharmacopœia? We can find none except that which is to be immediately diluted with alcohol to form the *spiritus etheris nitrosi*, and that, of course, should be 100 per cent. In the spirit the Pharmacopœia demands 5 per cent of nitrous ether, but whether the apothecary or the patient gets that in all cases can only be determined by the appropriate tests.

Query 13. "*Does the commercial compound spirit of ether contain the ethereal oil as required by the Pharmacopœia?*" We do not know how it is now, but while we were in active practice in pharmacy, a period of 25 years, we never saw any compound spirit of ether which contained ethereal oil until we imitated and reported Dr. Squibb's experiments in our own imperfect manner, with limited accommodations and apparatus. The commercial article then furnished corresponded to Dr. Squibb's description of it in his article on the subject in the *American Journal of Pharmacy*, 29 years ago, and we confess that to-day we should be shy of any package which did not bear the label and other genuine marks of coming from the laboratory of either Dr. Squibb or Professor Diehl. Cupidity on the one hand and ignorance on the other have combined to destroy faith in and the reputation of a remedy which formerly commanded the confidence of the medical profession. It would seem, moreover, that whether Hoffmann's anodyne contains ethereal oil or not is practically of very little consequence, since in the days of elixirs, fluid extracts, sugar-coated pills, and elegant pharmacy, generally old, reputable, and well-established remedies are relegated to the back seat, or are driven further even to the wall, or else quite out of court.

Query 16. Cannot a more economical process than the official be suggested for making ethereal oil? When the best results obtained by skilful scientific and practised operators show that it requires from 10 to 11 pounds of sulphuric acid, and from 4½ to 7 pounds of alcohol to produce 1 oz. avoirdupois of ethereal oil, this question is one which would naturally force itself upon the attention of every one at all conversant with the matter. This enormous waste seems to arise from the formation of several compounds, the production of which is not sought, viz.: sulphuric ether, carbonic acid, carbonic oxide, olefiant gas, acetic acid, acetic ether, thiomelanic acid—all at the expense of the alcohol, although the sulphuric acid has some share in the most of them. In Dr. Squibb's paper on this subject, printed in the *American Journal of Pharmacy* in 1857, he remarks: "The great disproportion between the material and the product under the most favorable circumstances, made it most desirable that some economical process should be found for this preparation, and the writer has long been under the impression that by the distillation of anhydrous sulphovinates better results might be had. The few trials made in this direction have, however, thus far given no hopes of success as far as practical application is concerned."

The volume and amount of the thiomelanic acid would seem adequate to account for the major part of this waste of alcohol, especially when we take into account the preponderance of carbon in its composition, none of which can be derived from the acid. A mean of four analyses gives 66.67 per cent of carbon on this compound. And it seems to us that when this black mass is fully formed, the distillation of sulphovinic acid is practically terminated, all the alcohol having been consumed, and only terhydrated sulphuric acid remaining entangled in the vesicles or interstices.

But what is *Oleum Ætherеum?* From the variety of nomenclature employed, it should seem that chemists entertain different views of its constitution. But one thing is certain, that sulphovinic acid is an important constituent thereof, and it may not be irrelevant to our discussion to consider the formation of this compound. Oil of vitriol mixes with alcohol with a remarkable evolution of heat, increasing even to ebullition of the uncombined alcohol, and is thereby changed, provided the mixture is not kept too cold, into sulphovinic acid and dilute sulphuric acid.

This formation of sulphovinic acid was discovered by Sertürner. It was noticed that the mixture, after dilution with water, upon digestion with excess of lead oxide or calcium carbonate, yielded a smaller amount of sulphate than would have been expected, and that the liquid filtered from the sulphate contained an easily-soluble crystallized salt, the sulphovinate. [The author now quotes from Gmelin, among other passages, the following:]

As the matter is very instructive, we quote further from the section on sulphovinic acid: To 1 atom (46 or 55 parts) absolute or 85 per cent alcohol, surrounded with a freezing mixture of ice and salt, is added 1 atom (49 parts) oil of vitriol, slowly and with constant stirring, so that no heating can take place; the mixture contains no sulphovinic acid, not even after several days, provided that it is surrounded with melting ice. But at 10° to 15° C. the sulphovinic acid gradually makes its appearance, so that after three or four

* Read at the meeting of the Am. Pharm. Assoc. at Providence.

days 77 per cent of the sulphuric acid is thus converted. This takes place at 30° to 35° in a few hours, and on immersing the mixture in boiling water in a few minutes; but strong sunlight has no influence upon it. If sufficient alcohol is poured into oil of vitriol to induce strong heating, the complete formation of sulphovinic acid follows instantly. This proportion of sulphovinic acid does not increase by continued immersion and heating; of 100 parts of sulphuric acid, when equal atoms of alcohol and acid are employed, 77 are converted into sulphovinic acid. With two atoms absolute or 85 per cent alcohol, phenomena are exhibited; but in this case it is much easier to hinder the formation of sulphovinic acid by cold, and by warming of the mixture 73 or 74 per cent of the sulphuric acid, at the most, are converted into sulphovinic acid. On the other hand, by the employment of 1 atom alcohol and 2 atoms acid, sulphovinic is formed under all circumstances, even under severe cold, and then there is always 56 per cent of sulphuric acid changed into sulphovinic acid; whether the alcohol is found in the acid, or the reverse; whether it is cooled or not cooled, whether the mixture is immersed and heated long in boiling water or not, in which it suffers no loss of weight*—a proof that the alcohol used for the formation of the sulphovinic acid is not in any manner combined.

Of the treatment of the sulphovinates for obtaining ethereal oil, we have the following description:† "Crystallized calcium sulphovinate is carefully and completely dried *in vacuo;* it is then subjected to distillation, and the distillate is purified as follows: the distillate is shaken with ice-cold water, which frees it from sulphuric acid, and part of the sulphurous acid, alcohol, and ether; it is separated from the water and introduced under the receiver of the air-pump, which is slowly and gently worked so as to evaporate the ether and sulphurous acid without causing too violent ebullition."

From the foregoing observations by accomplished European chemists, it should appear that nothing is easier than to prepare sulphovinic acid in quantities to meet any requirements. The chief difficulty to be encountered seems to be proper preparation and treatment of the sulphovinates before distillation and the management of the process. We have received the impression from the operation of ethereal oil by distillation of the mixture of alcohol and acid, that sulphovinic acid was very sparingly produced, but when we learn that from 50 to 75 per cent of any given quantity of sulphuric acid can be thus easily and rapidly converted, it seems to open the road to a more economical and productive process for ethereal oil than we had thought possible. We know nothing of the difficulties to be encountered, or the phenomena to be observed in conducting this operation; but we hope that the discouraging tone of Dr. Squibb's remark, quoted above, will not deter any one possessing the means and appliances necessary to travel the road above indicated with certainty and success.

Query 57. The green color in oil of cajuput is generally due to copper, sometimes to chlorophyll. Is the contamination with copper still prevailing, and, if so, how much copper does the oil contain, or how much can it take up? And in what condition does the copper exist in the oil? We quote once more from the authority already so often appealed to with instruction and satisfaction:

"Commercial cajuput oil contains generally copper dissolved, by which its original green color is increased, for it is met with of a greenish color without containing copper. The copper, which arrives in the oil by its being dispatched in copper flasks, can never be recognized by its deeper blue upon being shaken with ammonia, nor is it easily thrown down by potassium, iron, or zinc; but it is better detected by the electric current. If the poles of a voltaic battery are immersed in cajuput oil mixed with water, the wire of the positive pole becomes covered with copper oxide by the copper contained in the oil; the wire of the negative pole liberates hydrogen. Upon the addition of aqueous ammonia, gas is liberated at both poles; besides that flocculi of copper form at the negative pole and the oil becomes yellow. The dissolved copper may also be detected on shaking the oil with aqueous potassium cyanide by the red precipitate of copper cyanide. Copper may also be separated by distillation, as it passes over only in the last portion of the distillate. A Paris cajuput oil contained, according to Guibourt, 0.022 per cent of copper ("Handbuch," vii., 312)."

Query 83. What is the best paste for labelling bottles, and how can paste best be preserved?

A formula for flour paste which we have used with more satisfaction than anything else we have ever tried is made as follows:

Put into a skillet or pint tin can 8 oz. water, and ½ oz. alum, set this on your oil stove or other source of heat, and let it boil. While waiting for it to boil, weigh out 2 oz. good flour and put into a mortar, add 4 oz. water, gradually stirring it with the pestle to a smooth cream free from lumps. By this time your alum water perhaps is boiling; if so, decant your flour mixture in it, and stir till the flour is cooked, which you will know by its change from a dead white to an opalescent appearance like starch boiled. Remove from the fire and allow it to cool. While still a little warm, add 15 drops of a mixture composed of good wood creasote and oil of cloves, 2 drachms each, which it would be well to prepare and keep in a bottle for this very purpose.

For this quantity of paste, don't use more than ½ oz. alum. If you do, you will be anathematizing the careless fellow who dropped your brush on the floor and put it back without cleaning it. An excess of alum will fill the paste with small crystals like grains of sand.

Paste prepared in this way will keep an indefinite length of time without souring or moulding. It will bear frequent additions of water as it becomes dry.

Kauri Gum as a Medicinal Substance.—Many years ago Dr. Hammond, of Bournemouth, presented me with a fine specimen of kauri gum, which one of his sons had brought from Auckland, in New Zealand. In experimenting with the gum thus supplied, I have found that it may be made to perform many useful services in medicine. When the gum is burned—and it burns briskly—it gives out a very pleasant odor which destroys the odor of putrefying organic substances most effectively. Dissolved in spirit, it makes a fluid which burns in the lamp with good effect. Reduced to a fine powder and shaken with water, it communicates to the water new properties, so that, sprayed in a room, it renders the air ozonic. It mixes well with ointments, forms a good combination with soap, and, combined with iodine, is a useful deodorizer and disinfectant. The gum is from a pine, the kauri tree, *Dammara australis.—The Asclepiad.*

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* Comp. "Handbook" iv., 750.
† "Handbook" vi., 538.

Criticisms of Familiar Prescriptions.*

I DESIRE to call attention to some incompatible prescriptions that have come to my notice during the past few months, and suggest methods of modifying some of them, so as to render them compatible without setting aside the therapeutic effect intended.

Incompatible prescriptions may be divided into three classes—pharmaceutical, chemical, and physiological.

Pharmaceutical incompatibility nearly always depends upon the disproportion between the alcohol and water in the preparations joined in the prescription; in such a mixture as

Tinct. Nucis Vom.,
Ext. Ergotæ Fl. . . . . āā fl. ʒ i.

Alcohol is in excess; the latter being made with dilute alcohol, and containing substances not soluble in strong alcohol. These are, therefore, precipitated when added to tincture of nux vomica, which contains 8 parts of alcohol to 1 part of water.

The precipitate clings to the bottle, causing considerable loss of the medicinal constituents of the ergot. After several experiments, I found the following to give a clear mixture:

Tinct. Nucis Vom.,
Ext. Ergotæ Fl. . . . . āā fl. ʒ vij.
Aquæ . . . . . fl. ʒ ij.

Another incompatibility of the same order is

Ext. Ergotæ Fl. . . . . fl. ℥ iiiss.
Tinct. Ferri Chlor. . . . . fl. ℥ ss.

The precipitate in this case may be avoided by diluting the tincture of iron with an equal volume of water.

Another form is

Resinæ Podophylli . . . . . gr. i.
Syr. Rhei Aromat. . . . . fl. ℥ iij.

The resin being insoluble in the syrup, no matter how intimately they are mixed, it will separate in time, and adhere to the bottle. The addition of a small quantity of aromatic spirit of ammonia, which mixes very well with the syrup, will dissolve the resin and avoid the objections.

It is a common thing to receive a prescription for compound tincture of cinchona, combined with aqueous fluids; a precipitate being almost invariably the result. Very few tinctures and fluid extracts bear dilution with water. When dilution is necessary, simple elixir will generally do better.

Chemical incompatibilities are dependent on the laws of chemisty, and the nature of the substances involved is materially changed. The only remedy is to avoid the use of the incompatible substances in the same mixture. I have frequently received this prescription:

Zinci Sulphatis. . . . . gr. xx.
Pot. Sulphidi. . . . . gr. xxx.
Aquæ . . . . . fl. ℥ iv.

The zinc sulphate and potassium sulphide react to form insoluble zinc sulphide and potassium sulphate.

Also

Quin. Sulph. . . . . gr. xxx.
Ac. Sulph. Dil. . . . . q. s.
Pot. Iodidi. . . . . ʒ ij.
Aquæ. . . . . q. s. fl. ʒ iij.

Potassium iodide produces precipitates with most alkaloids, and in this case gives such a bulky yellow precipitate with the quinine as to render the mixture unfit for use.

Another:

Hydrarg. Bichlor. . . . . gr. i.
Sodii Biboratis. . . . . gr. xx.
Glycerini. . . . . fl. ʒ iv.
Inf. Picis Liq. . . . . q. s. fl. ℥ iv.

By action of the borax an insoluble mercury salt is formed, and as the mixture is intended for a spray, no effect can be expected from the mercury.

---

* DR. JAMES A. KYNER in *The Polyclinic.*

Another, similar to the above, with zinc sulphate instead of mercuric chloride, to be used also as a spray, is rendered inactive by the zinc forming an insoluble salt with the borax.

In the following,

Magnesii Sulph..... ʒ ss.
Sodii Phospha is..... ʒ ss.ȷ
Sodii Chloridi.....gr. xx.
Ferri Sulph.....gr. x.
Inf. Quassiæ..... ....fl. ℥ iv.

insoluble magnesium phosphate is formed, making a very unsightly mixture.

So also

Morph. Sulph..... ...gr. i.
Syr. Scillæ Co .....fl. ʒ i.
Sodii Bicarb.... ..... ʒ i.
Aquæ.....fl. ℥ ij.

The alkaline carbonate causes the morphine to precipitate, and, after standing several days, all can be collected on a filter; the filter giving no reaction for morphine.

Another on the same principle is

Morph. Sulph.....gr. vi.
Sodii Biboratis .... ʒ iv.
Aquæ Camphoræ..... fl. ℥ vi.

Here the borax acts the same as the carbonate in the previous case.

Prescriptions similar to the following are common, owing to the fact that licorice is an excellent vehicle for quinine.

Quininæ Sulph.....gr. xxx.
Acid. Sulph. Dil.....q. s.
Ext. Glycyrrhz. Fl.,
Syrupi,
Aquæ..... .....ãã fl. ℥ i.

Glycyrrhizin, the sweet principle of licorice, is a compound of glycyrrhizic acid and ammonium, and in the presence of acids is decomposed; glycyrrhizic acid being set free. This is a very peculiar insoluble gelatinous substance which carries the quinine down with it, and forms a semi-solid mass in the bottom of the vessel. The ammonia in the fluid extract aids in the precipitation by neutralizing some of the acid which holds the quinine in solution.

It is hardly within my province to discuss physiological incompatibility, but the prescribing of pepsin, combined with sodium bicarbonate, is so frequently done, and is so gross an error, that it deserves mention. This practice has become so common that a certain hospital in this city has the following formula in its pharmacopœia:

Pulvis Pepsini et Sodæ.

Pepsini Sacchar.....gr. ij.
Sodii Bicarb.....gr. i.

M. ft. chart. No. 1.

An Improvement in Ointment—Brooke's Salve Sticks.—Dr. Brooke has brought before the Manchester Medical Society a number of ointments prepared with a solid base composed of cocoa butter, wax, and oil, or lanolin, and cast into the form of sticks, which he terms "salve sticks." He has found them particularly useful in making applications to the face and hands, since, their melting-point being high, they do not run at the temperature of the body, as do ointments prepared with the ordinary bases, and when dusted over with powder, the parts are practically invisible as shiny places. Covered with an adhesive plaster, they offer a mode of applying remedies to the skin. With this protective covering, they are, we are assured, particularly applicable to the treatment of psoriasis by chrysarobin. The patient may bathe without fear of removing the dressing. These salve sticks are supplied in small cases like those used for cosmetics, so that they can be conveniently carried in the pocket of the practitioner or the patient. This is looked upon as a cleanly and economical method of applying ointments of different kinds.—*Monthly Magazine.*

EXTRACTION APPARATUS.

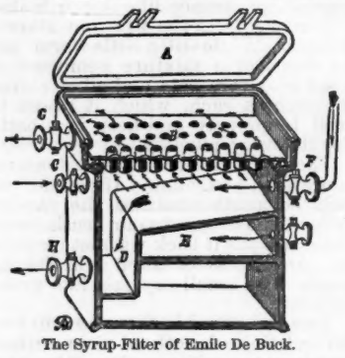
R. Benseman describes (in *Repert. f. Anal. Chem.*, 1886, 390) an extraction apparatus for volatile liquids which consists of two glass tubes. The inner one is intended for the reception of the substance to be extracted, and has a small opening near its upper end where the volatilized vapors enter. The outer tube is fused upon the inner near the neck. The volatile solvent passes in vapor in the direction of the arrows, and finally drops back upon the substance in the inner tube.

Permanent Ink Pads.

Vomacka recommends the following substitute for the usual marking pad and vial of ink:

Thirty to forty parts of concentrated glycerin are saturated with the desired color (blue, red, green, black, etc.) which must be an aniline color of the darkest corresponding tint, and soluble in water. Ten parts of glue are soaked in cold water for twenty-four hours, the excess of water then poured off, the swelled glue dried rapidly between towels, and then melted on a water-bath in the above-mentioned glycerin, of which a larger or smaller quantity is required, according to the quality of the glue. The excess of water is evaporated off, taking care not to stir the mass so as to incorporate air-bubbles, and the mass is then poured into suitable receptacles.

If, on standing, any air-bubbles show themselves, they may be removed with a stiff cardboard. The smooth surface of elastic glue now represents the color-



The Syrup-Filter of Emile De Buck.

pad, and yields up its color evenly and slowly. If the mass becomes uneven it may be restored by simply melting, and if it should become a little hard on the surface, it need only be rubbed over with a sponge dipped in hot water.

If metallic stamps are to be used upon these glue-pads, the smooth surface of the former should be roughened by fine emery or sand-paper.—*National Druggist.*

Detection of free Mineral Acids in Vinegar.

Dr. Föhring recommends *sulphide of zinc* for this purpose. This compound is not affected by acetic acid, either concentrated or dilute. Hence, when sulphide of zinc is treated with acetic acid or vinegar, no hydrosulphuric acid gas is given off. On the other hand, sulphuric and hydrochloric acids, even when highly diluted, decompose the above-named salt, and liberate hydrosulphuric acid.

Therefore, if vinegar is heated, with a little sulphide of zinc, in a test-tube, no odor of hydrosulphuric acid should be given off.—*Chem.-tech. Central-Anz.*

FILTERING APPARATUS FOR CANE-JUICE, SYRUPS, ETC.

We take from *De Indische Mercuur* the description and cut of this handy and ingenious piece of apparatus, since, with slight modifications, it can be readily adapted for a variety of purposes in chemical and pharmaceutical manufacturing laboratories. It is especially suited for the filtration of saccharine and other more or less viscid fluids; thus it can be employed in filtering a large number of vegetable juices and extracts, oils, fats, crude glycerin, various tar and petroleum products, etc.

The juice or fluid to be filtered is retained in suitable tanks or other vessels at an elevation, according to the inventor, of from 3.5 to 5 meters above the level of the filter-chamber, but it is evident that this height may be increased with advantage when additional pressure is necessary or expedient. It enters the filter-chamber by the tap F, as shown by the arrows. D is a well in which any "foots" or sediment gradually deposits itself, and from whence it may be periodically removed by opening the cock H. Steam is admitted into E, for the purpose of retaining the apparatus at any required temperature.

The actual filtration takes place by ascension through the plate B, which is pierced with a number of holes in which the filtering cones are tightly and accurately fitted, although they are removable when necessary, and the clear filtrate passes on through the exit-tap G. Whenever required, for cleansing purposes, steam can be admitted by way of C, and not only are the under surfaces of the filtering-cones (*viltstoppen*) cleared by this means, but the removal of deposited matter, in the well D, is thus greatly facilitated.

The filtrate which is forced through the filter-cones is stated to be purer and brighter than can be otherwise obtained. The thickness of the filter-cones as compared with the depth of the porous media in the filters of Purrez and of Hélaers, for instance, is some 60 times greater, or about 3 centimeters, instead of half a millimeter only, and, in the case of cane-juice, analyses can be cited to show more distinctly the advantage of this apparatus.

For purposes of thorough cleansing, other than with the steam current previously referred to, the plate B can be readily lifted entire, and replaced by another with a fresh set of filter-cones. These latter, however, can be used for two months or more before needing renewal.—*Brit. and Col. Drug.*

Novel Use of the Sand-Blast.

The latest application of the sand-blast for manufacturing purposes is for peeling potatoes, without material loss of the starchy matters, in starch factories, distilleries, etc. The raw potato is either brought under the blast, and turned until the peel is removed—an operation which is said to be quite rapid—or the blast is ejected upwards from a nozzle, and potatoes are thrown upon the jet, where they are whirled about in the same manner as the paradoxical ball upon the jet of water issuing from a fountain.

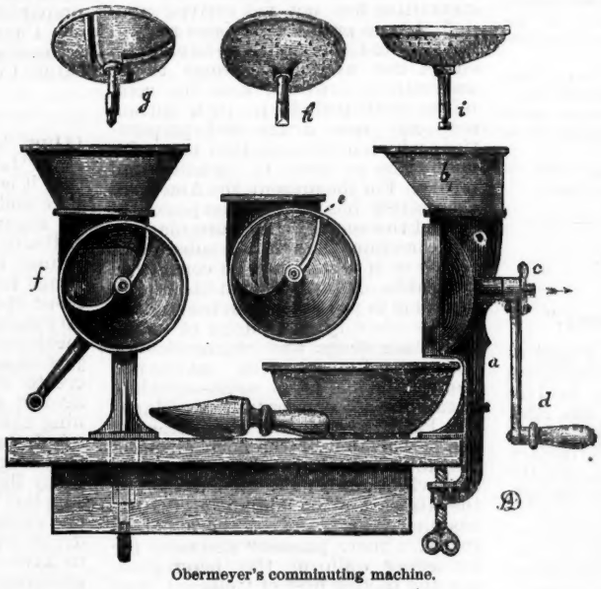
Naphthalin as an Anthelmintic.—Dr. Coriander, of Samarkand, recommends naphthalin as a valuable and economical remedy, especially in country and military practice, for worms, both tænia and ascarides. He gives children of from one to three years of age 2 or 3 grains twice a day. In the case of adults, he gives from 20 to 80 grains a day in powder with sugar.

A NEW COMMINUTING MACHINE.

THE apparatus here described has been designed, primarily, for comminuting various kinds of solids used in cooking, but it is also serviceable for certain pharmaceutical operations.

It consists of an exterior case *a* with a hopper *b*, which latter may be lengthened by an extra tin hopper *b*. Both the case and the hopper proper are enamelled inside. Each machine is provided with a series of cutters or cutting discs, which are made of hardened and nickel-plated sheet steel, and are in the form of hollow segments of a globe, which are easily inserted through the central axle, and fastened by a thumb-screw *c*. The axle itself is turned by the winch *d*. The whole arrangement is fastened to the edge of the table by a clamp. When soft substances are to be cut, such as beans, a special inset *e* is used. This fits close to the disc, and contains two grooves for receiving the beans, etc. For harder substances, another special inset *f* is placed into the hopper, which latter is thereby closed at an acute angle. The object of this is to prevent the substance which is to be ground from being wedged in, as the bottom part of the hopper becomes narrower towards the cutting edge. This last-named inset is, however, not needed for cutting soft fruits, or for any substance of about the consistence of boiled potatoes. If raw potatoes, cacao, almonds, or the like are to be comminuted, the inset *f* is necessary.

Some of the cutters are shown in the accompanying smaller cuts (*g*, *h*, *i*). Each machine is accompanied by two cutting discs having fine holes, and one with larger holes; also by two discs for making thin or thick slices. The discs may be changed without difficulty at any moment. Before they are put away, they must be thoroughly cleaned, and then rapidly dried by exposure to a moderate heat.



Obermeyer's comminuting machine.

The capability of this apparatus is said to be quite extraordinary. For instance, 50 lbs. of blanched and dried almonds may be comminuted by means of it within 15 minutes, according to the report of one of the purchasers.

The inventor and patentee is Alexander Obermeyer in Rittershausen (Barmen), Germany. The apparatus is also patented in this country. Its price at the depot of the inventor is 30 marks, or about $7.50.

Urethan.—According to the *Pacific Med. and Surg. Journal*, some urethan of English manufacture, which is now being sold, has a most offensive mousy smell, resembling that of acetamide. Dissolved in water a solution, nauseous both in taste and smell, is produced. When properly made, urethane has no unpleasant smell or taste. The English urethan seems as effective, but until it is more carefully prepared, the more agreeable German drug alone should be used.—

Poisoning by Carbon Disulphide.—A French journal states that a number of persons have recently been poisoned in France by eating asparagus grown in localities where small amounts of sulphide of carbon existed in the soil. The symptoms were diarrhœa, with cramps.

Antifebrin.

THE list of antipyretics has again been increased by the accidental discovery of antifebrile properties in a derivative of aniline, viz., *phenylacetamide* or *acetanilide*, through Drs. A. Cahn and P. Hepp. For convenience, the substance has been named *antifebrin*, and it has been reported to possess antipyretic powers four times as great as those of antipyrin.

Antifebrin is administered in doses of 5 to 30 grains per day; its effects are manifested in about one hour, and reach its maximum in about four hours. It decreases the temperature in febrile diseases, but does not affect that of the healthy subject.

Antifebrin has also been observed to stop the excruciating pains accompanying acute rheumatism.

From the reports so far published, the substance appears to be less liable to produce disagreeable secondary effects than other antipyretics; and comparatively large doses may be administered without injury.

The substance itself has been known to chemists for a long time, but its physiological properties have only recently been discovered by accident. It is prepared by heating aniline and glacial acetic acid in a flask provided with an upright condenser for forty-eight hours, and then distilling, when the acetanilide is obtained in an impure state, and may then be purified by crystallization from benzol or boiling water.

When pure, "antifebrin" is a white, crystalline powder, without odor, imparting a slight burning sensation to the tongue, and melts at 101° C. (according to Gerhardt, at 112° C.). It is soluble in 189 parts of cold water (at 6° C. = 42.8° F.), more readily soluble in ether and in alcohol. From its alcoholic solution it is not precipitated by water. It is also soluble in benzin, benzol, and essential oils.

Acetanilide or phenylacetamide has the following chemical constitution:

$$NH.C_6H_5.C_2H_3O,$$

which may be briefly explained as follows:

Ammonia has the composition NH_3 or NHHH. Each of these three atoms of hydrogen may be replaced by some other substance of like atomicity, such as an alcohol-radical or an acid-radical.

When only *one* atom of hydrogen is thus replaced—in which case the substitute must be a monatomic radical—the result is a so-called *primary amide*. For instance, acetamide is formed thus:

$$\underset{\text{acetic chloride}}{C_2H_3O.Cl} + \underset{\text{ammonia}}{NH_3} = \underset{\text{acetamide}}{NH_2.C_2H_3O} + HCl$$

When *two* atoms of hydrogen are replaced, we may distinguish several cases:

1. Either the *two* atoms are replaced by *two* monatomic or univalent radicals. In this case, the name of the product is likewise made to end in *-amide*. For instance, di-acet-amide ($NH.2\ C_2H_3O$); or ethyl-acetamide ($NH.C_2H_5.C_2H_3O$), etc., etc.

2. Or *two* atoms of hydrogen are replaced by *one* diatomic radical, in which case the name of the product is made to end in *-imide*. For instance:

$NH.C_4H_4O_2$
succinimide,

the radical $C_4H_4O_2$ being bivalent.

The substance which interests us here is *phenylacetamide*, which evidently belongs to the first of these two groups, for each of the two hydrogens is replaced by a monatomic radical: C_6H_5 is phenyl, derived from $C_6H_5.OH$ or phenol. And C_2H_3O is a monatomic radical, derived from $C_2H_4O_2$, or acetic acid. Hence,

$$N\begin{cases} C_6H_5 \\ C_2H_3O \\ H \end{cases} = \text{phenyl-acet-amide, or antifebrin.}$$

Antifebrin is a neutral substance, not acted upon by sulphuric or hydrochloric acids, and not affected by alkalies, except when they are very concentrated. Having neither basic nor acid properties, there can be no salts of which it may form a part, as is the case with most of the other recent antipyretics.

The wholesale price of the substance is about $4 per pound in Germany.

The results of the investigation of the therapeutic properties of antifebrine, by Drs. Cahn and Hepp, are thus summarized in the *Lancet:*

They gave it in considerable doses to rabbits and dogs, and, finding it entirely free from deleterious effects, they administered it to twenty-four patients with fever, eight having typhoid, five erysipelas, four phthisis, two articular rheumatism, etc. The doses given were from 4 to 15 grains, as much as 30 grains being given during the day. The dose required varied with the case. Generally speaking, it was found that it produced about as much effect as four times the same quantity of antipyrin. So far, the writers have never seen any case in which antifebrin failed to lower the temperature. The effect began to show itself in about an hour, attaining its maximum in four hours, and ceasing to produce any diminution in from three to ten hours more. A dose which was strong enough to reduce the temperature to normal usually kept it so for from six to eight hours. The fall of temperature was generally accompanied by a redness of the skin and increased perspiration. The subsequent rise was not accompanied by cold sweats, though sometimes the patients complained of feeling cold. The pulse diminished in frequency *pari passu* with the fall in temperature. No disturbance of the digestive organs was ever observed. Sometimes, indeed, the appetite returned whilst the temperature was low. Occasionally there was thirst and an increased excretion of urine. In some cases, too, there was a blueness of the face and extremities. In one case of acute rheumatism the pain in the joints and the fever disappeared rapidly after commencing antifebrin.

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EDITORIAL.

The "National Formulary."

As will be seen from the report of the late meeting of the American Pharmaceutical Association, held at Providence, September 7th–9th, 1886, the report and recommendations of the Committee on National Formulary were accepted and approved, and the preliminary draft, which was submitted, was ordered to be printed so as to be available for criticism and improvement during the coming year. No one is more conscious of its imperfections and inconsistencies than the committee itself. The writer of this being one of the members, considers himself authorized to make this statement. Yet there is ample time, if proper assistance is rendered, to make it more perfect and complete. It may be assumed that more fault will be found with it for the *omission* of a large number of preparations, than for the *admission* of those contained in it. There are, no doubt, some among the latter which, on further examination, will be found undeserving of a place in the work. The omissions, on the other hand, can be best amended by contribution of titles and of working formulæ from the different sections of the country. The Committee on the National Formulary has been reconstructed so as to embrace, besides the present five members residing in New York and Brooklyn, *one* representative of each State Pharmaceutical Associations, to be appointed by the President. These members, who might, for brevity's sake, be called *non-resident* members, when appointed, will be informed of the days and time of the meetings of the committee, and, if they can attend the sessions in person, will be able to cast their vote on any proposition. It is hoped that as many as can make it convenient will appear at the meetings. At all events, it will be their function to represent and act for the committee within their respective States.

The plan first adopted and carried out by the American Pharmaceutical Association, of preparing and issuing under its own auspices a National Formulary of Unofficial Preparations, has found so much favor abroad that the British Pharmaceutical Conference has already imitated the example and decided to elaborate a formulary on a similar plan. To British pharmacists such an undertaking must appear particularly valuable, useful, and also attractive, as it appears to be the only way in which the pharmaceutical talent of Great Britain — disdainfully treated by the Medical Council in the revision of the British Pharmacopœia —can prove its competency and right to be entrusted with the elaboration of practical formulæ which will stand the test of time and experience. The discussion on this subject—a report of which has just reached us in our English exchanges—shows that this movement has been entered upon with great vigor and enthusiasm, and with a full recognition of its importance. The committee which has been appointed for the execution of the work consists of Messrs. Greenish, Groves, Martindale, Dr. Symes, Dr. Thresh, H. Martin, H. W. Naylor, Maben, Abraham, and Reynolds. It appears that the committee has not yet arrived at a definite and practical decision regarding the kind of formulas to be embraced in the work. It seems to be understood, however, that the committee shall include in their formulary any new drugs and preparations which may come into use, with definitions or tests of identity and purity. For the present, the American Committee has not contemplated to extend the scope of its Formulary in this direction, though at a subsequent period such a step may be considered advisable. It is true that it is quite desirable to possess a definite standard for the identity and purity of unofficial crude drugs and chemicals—for instance, for resorcin, antipyrin, naphthalin, naphthol, sodio-salicylate of caffeine, Franciscea uniflora (Manaca), Piscidia erythrina, etc., etc.—yet the preparation of the corresponding text to accompany each of these articles will require more time than is at the disposal of the committee for the ensuing year. And as there exists, really, a more pressing necessity for rendering uniform the heterogeneous and motley host of "elegant" and other preparations, of which the pharmacist is compelled to keep in stock a number of brands to satisfy the popular demand—much to his annoyance and financial loss—it is preferable to devote attention to this portion of the work for the present.

The Preliminary Draft for a National Formulary which has been handed in at the Providence meeting, is now being printed, and a sufficient number of copies will be available for distribution to those who intend to co-operate in the work. In order to show the character of the collection, so far as the Committee have been able to perfect it, we publish, elsewhere in this number, a selection of formulæ, preferably of such as present specimens of various preparations, and are perhaps less likely to be remodelled than others.

After reading the propositions submitted to the American Pharmaceutical Association by its special committee on a National Formulary and adopted at the meeting in Providence, one might very naturally inquire whether there is any real necessity for such a work independently of the Pharmacopœia. If the demand for such articles as are referred to in the detailed report of the committee is sufficiently great to justify national action and co-operation, in order to secure uniformity of products, it would seem that such articles should be included among those for the preparation of which the Pharmacopœia is intended.

Take, for example, the elixirs as an illustration. This class of articles embraces now so many varieties that it constitutes an important part of a pharmacist's stock in trade. Multitudes of physicians prescribe them, and quite as many, we venture to say, are sold without a physician's prescription. A strong effort was made to include certain of them in the Pharmacopœia, but was defeated, although pharmacists were in the majority on the Committee of Revision. Now we have the remarkable action on the part of the pharmacists, of undertaking the publication of an authoritative work, also of national scope, in which it is proposed that these very articles should receive a large share of attention. If elixirs are of sufficient importance to warrant consideration in one national work, why should they not also be recognized in the other?

We do not wish it to be understood that we are in any degree opposed to the work of this special committee. On the contrary, we believe that there can be but little doubt that the labors of the special committee will prepare the way for such a change in the Pharmacopœia and will, by just so much, lessen the labors of the future Committee of Revision.

The *Manufacturer's Gazette* says: "Long experience has shown that it is possible to drink adulterated beer and coffee, and to consume sanded sugar and miscellaneous sausages without immediate peril to life. We cannot, however, afford to permit our drugs to be tampered with. Let us insist upon being supplied with pure strychnine and arsenic, and with medicines that will not disappoint the just expectations of undertakers and create in their minds a prejudice against young physicians just beginning their career. We need less poison in our food and more poison in our drugs. The druggist must not fancy that the surreptitious medicine supplied to us by grocers can be made an excuse for the adulteration of drugs with harmless groceries. Let us have everything in its proper place, groceries at the grocer's and poison at the druggist's. The efforts of druggists and grocers, quietly to exchange their respective trades without permitting the public to be made aware of the fact, should be resolutely opposed."

In a recent examination, in Iowa, of a candidate for license to practise medicine, he was asked if he had ever attended any case of labor; he replied that he never did a day's work. (His wife said that he had always been lazy, but that, during the summer, he had pitched three loads of hay.) He was then asked if he had ever had any cases of obstetrics in the past year, and replied that he had not. He was then asked if he knew of any case of obstetrics occurring in his neighborhood during the past fifteen years, and he replied, after deep thought, that he did not.

A British practitioner, under the title of "F. R. C. S.," sends to the *Provincial Medical Journal* a list of a hundred medical books, with which he considers a junior practitioner would be armed for any emergency, and that in the list, "NEW REMEDIES" (the former title of this journal) appears. We appreciate the compliment.

Crystallized Cocaine. — We have been favored with specimens of crystallized cocaine and its hydrochlorate by Dr. Kerner, the well-known quinologist and manager of Zimmer's quinine works at Frankfurt on the Main. These crystals are of a remarkable size and beauty, some of them being nearly an inch long, not merely needles, but stout well-formed crystals.

College of Pharmacy of the City of New York.—The attendance at this College during the present winter session is larger than in any previous year. The Junior class of 1885-'86 numbered 130. This year it numbers, so far, 186. There are 106 students in the Senior class, and 8 special students. The new pharmaceutical laboratory was completed in time for the course, and proves to be an important new feature. It is the intention of the trustees to provide such other facilities as will be found necessary or desirable.

WE are indebted to Mr. E. C. Maxey, of Fargo, the Treasurer of the Dakota Pharmaceutical Association, for the information that, owing to the distances between points in the northern and southern portions of the territory being so great, chapter II., art. 2, of the constitution of that organization has been suspended for ninety days. All proprietors of drug-stores and clerks having three successive years' experience, will be admitted to the Association on signing the constitution and paying the fees.

Alviso B. Stevens, Ph.C., has been appointed as Lecturer on pharmacy at the School of Pharmacy of the University of Michigan, following the resignation of Assistant Professor Wrampelmeier. Mr. Stevens is well known as a pharmacist at 33 Lafayette avenue, Detroit. He graduated in pharmacy at Ann Arbor in 1875; was president of the Detroit Pharmaceutical Association for several years after its organization; and is an officer in the Michigan State Association.

Numbers on New York Avenues.

HERE is something from the N. Y. *Tribune* which will enable the corner druggist to answer a few, at least, of the numerous conundrums submitted to him in the course of his daily experience.

To find the number of the street nearest to any given house number on an avenue: Cut off the last figure from the number of the house, divide the remainder by 2, and then, for

Ave. D, add 3.

Ave. C, below 200, add 2; above 200, add 3.

Ave. B, below 200, add 2; above 200, add 3.

Ave. A, below 250, add 3; above 250, add 4.

First ave., below 200, add 2; between 200 and 600, add 4; above 600, add 5.

Second ave., below 200, add 2; above 200, add 3.

Third ave., below 400, add 8; between 400 and 800, add 9; above 800, add 10.

Lexington ave., add 22.

Fourth ave., below 200, add 6; above 200, add 8.

Madison ave., add 26.

Fifth ave., below 200, add 13; above 200, add 16.

Sixth ave., below 400, add 4; between 400 and 800, add 5; above 800, add 6.

Seventh ave., below 650, add 12; above 650, add 13.

Eighth ave., below 600, add 10; above 600, add 9.

Ninth ave., below 200, add 12; above 200, add 13.

Tenth ave., below 200, add 12; above 200, add 13.

Eleventh ave., below 600, add 14; above 600, add 15.

If you know the cross street and wish to know about what the number on an adjoining avenue will be, deduct the number for the avenue, double the remainder, and affix 5.

Correction.—In the paper of Mr. L. Eliel, on "Paste for Labels" in our last number, page 186, the last formula at the bottom of the third column should read:

Rye Flour	4 oz.
Powd. Alum	½ oz.

An Informal Meeting of the secretaries of State Pharmaceutical Associations, who were present at the Providence meeting, is likely to result in a more permanent organization.

Chicago Drug Clerks have organized a society with Wm. McDoughl, president; E. Neuschafer and C. Benkler, vice-presidents; E. C. Scholer, secretary; O. J. Harwig, treasurer.

The Pharmaceutical department of the University of Buffalo, N. Y., opened the present session with a class of thirty students.

The Commissioners of Pharmacy of Iowa are actively engaged in ridding the State of persons who sell liquor under the guise of practising pharmacy.

The Department of Pharmacy of Kansas State University opened with a class of thirty students this year.

Dr. Jirus, of Agram, has been selected for the Chair of Pharmacology in the Bohemian Faculty of Medicine in Prague.

The St. Louis College of Pharmacy commenced its twenty-first session on the 11th of October, with over 130 students. The chemical, microscopical and pharmaceutical laboratories have larger classes than ever before; and all indications point towards a very successful college year.

Law against Adulteration.—The Vermont Legislature, at its last session, passed a law prohibiting the adulteration of maple-sugar or honey, and imposing a fine of twenty-five to fifty dollars for its infringement.

A New Experimental Station at the sea-shore has been lately established by the Spanish Government for experimental zoology and botany.

American Goods in Foreign Markets.—The London *Daily Telegraph* is publishing an extensive correspondence upon the commerce of Great Britain and its colonies, in the course of which an Australian writes:

"At the Melbourne Club, one evening, an eminent medical man told me that the surgical instruments with which he was supplied from England were utterly useless to him, and that he was obliged to send to New York for instruments that were really serviceable. Another, and more unseemly device practised at home, is to send out boxes and cases and bottles of lozenges, pills, and jujubes only three-quarters filled."

In an interview with Mr. Alfred Felton, of the Australian firm of Felton, Grimwalde & Co., of Melbourne, by a representative of the *British and Colonial Druggist*, the reporter remarked that "in the matter of the sale of pharmaceutical preparations in the colonies, it is sometimes said that America is getting ahead of us," to which Mr. Felton replied:

"Well, at the Antipodes, there is an equal field for all comers, such as it is. There is a preference for English goods, and England, at present, undoubtedly has the market. Not only English and American pharmaceutical specialties, but German and French also have been introduced into Australia. Some of them succeed on their merits, and others, owing to the way in which they are advertised. Now, our American friends are great in this latter department, and this, in conjunction with the admirable way they get their goods up, materially assists them in obtaining a very good position with the public. The English producers, therefore, although they command the market, now will have to bestir themselves, and use all their intelligence to thoroughly adapt their goods to the colonial requirements, or they will lose ground."

"Patent" Medicines in Great Britain.—Twenty years ago, 11,520 venders of patent medicines were doing business in Great Britain, and 7,500,000 stamp labels were issued. In 1855 the number of venders had increased to 20,279, and the number of labels to 21,500,000. The revenue derived by the government from the latter source is estimated at $600,000 per year.

A NEW INTERPRETATION OF "M.D."—*The Southern California Practitioner* is responsible for the story of a doctor who gave up his profession on account of ill health, and went into the milk business. He printed his cards "J. B. Johnson, M.D. (which means milk distributor)." He recovered.

Artificial Tape-Worms.—A writer in the *Southern California Practitioner* says that the people from the country around Los Angeles go to that city for treatment for tape-worm, and return with yards of tænia in bottles. The worms, he admits, are very pretty, and, perhaps, worth all they cost, for they are made of *celluloid*.

Effect of Tincture of Iron on the Teeth.

DR. GEO. W. WELD has shown by experiments that tincture of the chloride of iron, of officinal strength, has but little, if any, effect upon dental enamel during immersion for twelve hours, but when immersed in a mixture of a drachm of the tincture with an ounce of water, the enamel was materially injured in five minutes, and at the end of twenty-four hours the enamel was completely destroyed. When a mixture of a drachm of the tincture of the chloride of iron with an ounce of alcohol was employed, no injury to the enamel followed immersion for twelve hours. A drachm of the tincture mixed with an ounce of elixir of pyrophosphate of iron produced no apparent chemical effect upon enamel after the lapse of twenty-four hours.

In a mixture of a drachm of the tincture with an ounce of simple syrup, enamel was but slightly affected.

"Horsford's Acid Phosphate," and "Phos-acid" destroyed the enamel of a tooth in an hour, while "Phosphomuriate of Quinine Comp.," a syrupy solution (each drachm containing two grains of free phosphoric acid) produced but little, if any effect on enamel during twenty-four hours.

The destructive effect of the tincture of the chloride is, to a great extent, modified in a mixture of a drachm with an ounce of Vichy water, owing to the neutralizing effect of the sodium bicarbonate upon the free acid of the tincture.

Dr. Weld advises that, in the use of tincture of chloride of iron, one or the other of the following vehicles should be employed: Alcohol, in some form, Vichy water, some form of elixir, or simple syrup.—*Med. News*, after *Amer. Jour. of Dental Science.*

SELECTED FORMULAS FROM THE PRELIMINARY DRAFT OF A NATIONAL FORMULARY.*

Ceratum Camphoræ Compositum (*Ceratum Camphoratum*). *Camphor Ice.*

Camphor	3 parts
Benzoinated Lard	15 "
White Wax	10 "
Spermaceti	4 "
Alcohol	a sufficient quantity.

Triturate the Camphor with a sufficient quantity of Alcohol to dissolve it. Then, having melted the White Wax and Spermaceti, on a water-bath, gradually add the solution of camphor, and continue stirring until the Alcohol has evaporated. Then withdraw the heat and having stirred the mixture occasionally until it has somewhat cooled, mix it, while still liquid, intimately with the Benzoinated Lard (which should have been prepared from purified and washed lard), and pour it into suitable moulds.

Elixir Aromaticum. *Aromatic Elixir.*

Aromatic Spirit	16 fluidounces.
Syrup	24 "
Water	24 "
Phosphate of Calcium	4 av. ounce.

Mix the liquids, adding the Water last; then mix thoroughly with the Phosphate of Calcium, and filter through a well-wetted filter, returning the first portions of the filtrate until it runs through clear.

Note.—The specific gravity of Aromatic Elixir is 1.100. This Elixir should not be mixed with preparations of Iron, unless the Aromatic Spirit contained in it, is prepared from the essential oils.

If it is desired to impart to this Elixir a red color, this may be effected by the addition of 2 fluidrachms of Tincture of Cudbear (No. 78) to each Pint. [Improved Formula of N. Y. and B. F.]

[The title "Simple Elixir" heretofore used has been changed to "Aromatic Elixir," so as not to bring about confusion with the officinal Elixir of Orange.]

Elixir Chloral et Potasii Bromidi Compositum. *Compound Elixir of Choral with Bromide of Potassium.*

Chloral	4 troy oz.
Bromide of Potassium	4 "
Extract of Cannabis Indica	16 grains.
Extract of Hyoscyamus	16 "
Water	enough to make 16 fl. oz.

Dissolve the Bromide of Potassium in 8 fl. oz. of boiling water, then add the Chloral. Add the Extracts to 4 fl. oz. of boiling Water, and when they are dissolved or uniformly distributed through the liquid, add the latter to the solution of the salts. Allow to stand two days, filter, and add Water, if necessary, to make the product measure 16 fluid oz. [Illinois.]

Elixir Ferri Phosphatis, Quininæ et Strychninæ. *Elixir of Phosphate of Iron, Quinine, and Strychnine.*

Phosphate of Iron (U. S. Ph. 1880)	256 grains.
Hydrochlorate of Quinine	128 "
Sulphate of Strychnine	1¼ "
Aromatic Spirit (No. 66)	6 fluidounces.
Water	4 "
Syrup	6 "
Simple Elixir (No. 46), enough to make	16 "

Dissolve the Sulphate of Strychnine in the Aromatic Spirit, contained in a flask, add the Sulphate of Quinine, place the flask into hot water, and shake it well occasionally. Dissolve the Phosphate of Iron in *four* (4) *fluidounces* of hot Water, in a capsule; add the Syrup, and heat nearly to the boiling point. Then pour into this hot mixture, all at once, the hot solution of the alkaloids, and shake well immediately. When cold, add enough Simple Elixir to make *sixteen* (16) *fluidounces*, allow to stand for twenty-four hours, and filter.

Each fluidrachm contains 2 grains of Phosphate of Iron, 1 grain of Hydrochlorate of Quinine, and $\frac{1}{160}$ grain of Sulphate of Strychnine. [Improved Formula of N. Y. & B. F.—Illinois.]

Elixir Ferri, Quininæ et Strychninæ. *Elixir of Iron, Quinine, and Strychnine.*

Tincture of Citro-Chloride of Iron	1 fl. oz.
Hydrochlorate of Quinine	96 grains.
Sulphate of Strychnine	1½ "
Citrate of Potassium	60 "
Aromatic Elixir, enough to make	16 fl. oz.

Dissolve the Hydrochlorate of Quinine and the Sulphate of Strychnine in 12 fl. oz. of the Aromatic Elixir. Then add the Tincture, and afterwards the Citrate of Potassium, so that any precipitate, that may have formed, will be redissolved. Lastly, add enough Aromatic Elixir to make 16 fl. oz.

Elixir Gentianæ Compositum. *Compound Elixir of Gentian.*

Gentian	256 grains.
Coriander	60 "
Bitter-Orange Peel	60 "
Alcohol	5 fl. oz.
Water	9 "
Sugar	4½ troy oz.
Aromatic Spirit	1 fl. oz.
Egg Albumen	120 grains.
Citric Acid	5 "

Mix the Alcohol and Water, and percolate the Gentian, Coriander, and Bitter-Orange Peel, previously reduced to a moderately fine powder, with this menstruum, until 13 fl. oz. of percolate are obtained. To this add the Albumen and Citric Acid, and filter. Finally, add the Aromatic Spirit and filter again. [District of Columbia.]

Elixir Guaiaci. *Elixir of Guaiac.*

Tincture of Guaiac, U. S. Ph.	1 fl. oz.
Carbonate of Potassium	5 grs.
Glycerin	1 fl. oz.
Compound Elixir of Taraxacum	1 "
Syrup	1 "
Water	30 min.

Mix the Tincture of Guaiac with the Carbonate of Potassium previously dissolved in ½ fluidrachm of Water, then add the other ingredients, in the order named, shaking after each addition.

Elixir Hypophosphitum Compositum. *Compound Elixir of Hypophosphites.*

Hypophosphite of Calcium	128 grs.
" " Sodium	128 "
" " Potassium	64 "
Solution of Hypophosphite of Iron	384 min.
Water	4 fl. oz.
Syrup	4 "
Aromatic Elixir, enough to make	16 "

Dissolve the solid Hypophosphites in the Water, add the Solution of Hypophosphite of Iron and the Syrup, and, finally, enough Aromatic Elixir to make 16 fl. oz., and filter.

Each fluidrachm contains 1 grain, each, of Hypophosphite of Calcium and Sodium, and ½ grain, each, of Hypophosphite of Potassium and Iron.

Elixir Pepsini. *Elixir of Pepsin.*

Pepsin, undiluted	128 grs.
Lactic Acid	30 min.
Syrup	6 fl. oz.
Alcohol	4 "
Compound Elixir of Taraxacum	1 "
Water, enough to make	16 "

Agitate the Pepsin with *three* (3) *fluidounces* of Water and the Lactic Acid, until it is dissolved. Then add the Syrup, Compound Elixir of Taraxacum, and the Alcohol, and finally enough Water to make *sixteen* (16) *fluidounces.*

Each fluidrachm contains 1 grain of undiluted Pepsin.

Note.—It is recommended that those commercial kinds of undiluted pepsins be selected which have been ascertained from time to time to be the most active and least affected with disagreeable odor or taste. Should any particular kind of pepsin be found to possess strong digestive powers, compared with equal quantities of other kinds, while it is found to leave a comparatively large residue insoluble in acidulated water, it should be remembered that all the active portion goes into solution, and the undissolved residue may in each case be rejected as inert. (The Lactic Acid ought probably to be replaced by Hydrochloric.)

Elixir Phosphori et Nucis Vomicæ. *Elixir of Phosphorus and Nux Vomica.*

Tincture of Nux Vomica	384 min.
Elixir of Phosphorus [N. Y. & B. F.], enough to make	16 fl. oz.

Mix them.

Each fluidrachm contains 3 minims of Tincture of Nux Vomica and nearly $\frac{1}{50}$ grain of Phosphorus.

Elixir Rhei. *Elixir of Rhubarb.*

Sweet Tincture of Rhubarb, U. S.	8 fl. oz.
Deodorized Alcohol	1 "
Water	3 "
Glycerin	3 "
Syrup	3 "

Mix the Alcohol, Water, Glycerin, and Syrup. Add this solution gradually and with frequent agitation to the Tincture.

Iodoformum Aromatisatum. *Aromatized Iodoform* (*Deodorized Iodoform*).

Iodoform	25 parts.
Cumarin	1 part.

Mix them intimately.

Note.—Many essential oils, such as those of peppermint, cloves, cinnamon, citronella, bergamot, sassafras, eucalyptus (also eucalyptol), etc., may be used for masking the odor of iodoform. But none of them appear to be as effectual or lasting as cumarin. When iodoform has come in contact with the hands, the odor may be most readily removed by washing them with a little aqueous solution of tannic acid.

Lac Fermentatum. *Kumys.*

Cow's Milk, fresh	32 fl. oz.
Yeast, semi-liquid	1 fl. dr.
Sugar	1 troy oz.

Dissolve the Sugar and Yeast in the Milk contained in a small bottle, and keep the mixture at a temperature of 75° to 90° F. for six hours, then transfer it to a cold place.

Linimentum Saponato-Camphoratum. *Opodeldoc.*

Castile Soap, in powder	1½ troy oz.
Camphor	½ " "
Alcohol	20 fl. oz.
Oil of Thyme	30 min.
" Rosemary	60 "
Stronger Water of Ammonia	1 fl. oz.

Introduce the Soap, Camphor, and Alcohol into a flask or suitable bottle, and apply a gentle heat until solution is effected. Filter the liquid, while hot, into another flask or bottle; then add the other ingredients; warm until the contents are again liquefied and uniformly mixed. Then pour into small

* From Report of Committee on National Formulary, presented at the Providence meeting of the Amer. Pharm. Assoc.—In preparing this Report for the press, all the formulæ published in other formularies, so far as they were officinally brought to the notice of the Committee, have been added.

vials, which should immediately be corked and cooled.

Note.—The above given quantities should be divided among twelve vials. Solid Opodeldoc is usually made with soap made from animal fats; but Castile Soap may be used, provided it be previously deprived of water.

Linimentum Ammonii Iodidi. *Liniment of Iodide of Ammonium.*

Iodine	30 grs.
Oil of Rosemary	120 min.
" " Lavender	120 "
Camphor	240 grs.
Water of Ammonia	2 fl. oz.
Alcohol	16 "

Dissolve the Iodine in the Alcohol, then add the Oils and Camphor. When they are dissolved, add the Water of Ammonia.

Linimentum Opii Compositum. *Compound Opium Liniment. Canada Liniment.*

Tincture of Opium	1 fl. oz.
Spirit of Camphor	1 "
Oil of Peppermint	½ "
Water of Ammonia	½ "
Oil of Turpentine	4 "

Dissolve the Oil of Peppermint in the Alcohol, then add the Spirit of Camphor, Oil of Turpentine, Tincture of Opium, and Water of Ammonia.

Note.—The mixture will separate on standing, and must be shaken up before it is used.

Liquor Ferri Iodidi. *Solution of Iodide of Iron (Ferrous.)*

Iodine	2,574 grs.
Iron Wire	2 av. oz.
Hypophosphorous Acid (50%).	3 fl. dr.
Distilled Water, enough to make	8 fl. oz.

Mix the Iron Wire with 6 fl. oz. of Distilled Water, in a flask, add about one-half of the Iodine, and agitate continuously until the liquid becomes hot. Then moderate the reaction by placing the flask in cold water, or allowing cold water to flow over it, meanwhile keeping up the agitation. When the reaction has moderated, add one-half of the remaining Iodine at a time, and again carefully moderate the reaction; each time in the manner above directed. Finally, raise the contents of the flask to boiling, and filter immediately through moistened pure filtering paper (the point of which is best supported by a loose pellet of absorbent cotton) into a bottle containing the Hypophosphorous Acid. When all the liquid has passed, rinse the flask with ½ fl. oz. of boiling Distilled Water, and pass this through the filter. Cork the bottle and set it aside to cool. Finally, add enough Distilled Water to make the product measure 8 fluidounces.

On mixing 1 vol. of this Solution with 5 volumes of Syrup, the product will be practically identical, measure for measure (not weight for weight), with the officinal Syrupus Ferri Iodidi.

Liquor Pepsini Aromaticus. *Aromatic Solution of Pepsin. Aromatic Liquid Pepsin.*

Saccharated Pepsin	320 grs.
Oil of Cinnamon	2 min.
Oil of Pimenta	2 "
Oil of Cloves	4 "
Alcohol	½ fl. oz.
Hydrochloric Acid	75 min.
Glycerin	6 fl. oz.
Water, enough to make	16 "

Dissolve the Oils in the Alcohol; mix the solution intimately with the Pepsin, by trituration in a mortar, then gradually add the Acid, Glycerin, and Water.

Each teaspoonful contain 2½ grs. of Saccharated Pepsin.

Liquor Pepsini Concentratus. *Concentrated Liquid Pepsin.*

Saccharated Pepsin	1 troy oz.
Hydrochloric Acid	1 fl. dr.
Glycerin	6 fl. oz.
Distilled Water	10 "

Triturate the Saccharated Pepsin with the Hydrochloric Acid, previously diluted with 1 fluidounce of the Water, add the remainder of the Water, and allow to stand, with occasional agitation, for 24 hours. Then add the Glycerin, mix well and filter.—[Kentucky.]

Liquor Sodii Boratis Compositus. *Compound Solution of Borate of Sodium. Dobell's Solution.*

Sodium Borate	60 grs.
Carbolic Acid	12 grs.
Glycerin	2 fl. drs.
Sodium Bicarbonate	60 grs.
Water, warm	8 fl. oz.

Dissolve and mix.

Note.—Dr. Dobell states that in certain cases the borate of sodium may be advantageously replaced by chloride of ammonium, chloride of potassium, or Condy's fluid.

Mistura Balsamica. *Balsamic Mixture. Mixtura Oleoso-Balsamica, Ph. Ger. Balsamum Vitæ Hoffmanni. Hoffmann's Balsam of Life.*

Oil of Lavender	30 min.
" Cloves	25 "
" Cinnamon	25 "
" Thyme	30 "
" Lemon	30 "
" Mace	30 "
" Orange Flowers	30 "
Balsam of Peru	70 "
Alcohol, enough to make	16 fl. oz.

Mix and dissolve.

Mistura Carminativa. *Carminative Mixture. Dalby's Carminative.*

Carbonate of Magnesium	1¼ troy oz.
Carbonate of Potassium	24 grs.
Sugar	3¼ troy oz.
Tincture of Opium (U. S. Ph. 1880).	200 min.
Oil of Caraway	2 "
" Fennel	2 "
" Peppermint	2 "
Water	16 fl. oz.

Triturate the Oils with about 1 drachm of the Carbonate of Magnesium, and the Water gradually added. Introduce the liquid into a bottle, add the remainder of the Carbonate of Magnesium and the other ingredients, and shake until the Sugar is dissolved.

This preparation should be freshly made when required, and should be shaken before being dispensed.

Each fluidounce represents about 1 grain of opium.

Mistura Copaibæ Composita. *Compound Copaiba Mixture. Lafayette Mixture.*

Copaiba	2 fl. oz.
Spirit of Nitrous Ether	2 "
Compound Spirit of Lavender	2 "
Solution of Potassa	4 fl. dr.
Syrup	5 fl. oz.
Mucilage of Acacia, enough to make	16 "

Mix the Copaiba first with the Solution of Potassa, then add the Spirit of Nitrous Ether and the Compound Spirit of Lavender. Mix the liquid with the Syrup, and finally with enough Mucilage, under active stirring, to make 16 fluidounces.

The mixture should be well shaken before it is dispensed.

Misturæ contra Diarrhœam. *Diarrhœa [or Cholera] Mixtures.*

1. *Sun Mixture.*

Tincture of Opium	1 fl. oz.
" " Capsicum	1 "
" " Rhubarb	1 "
Spirit of Peppermint	1 "
" " Camphor	1 "

Mix.

2. *Velpeau's Diarrhœa Mixture.*

Tincture of Opium	1 fl. oz.
" " Catechu	1 "
Spirit of Camphor	1 "

Mix.

3. *Hamlin's Cholera Remedy.*

I. Tincture of Opium	1 fl. oz.
" " Rhubarb	1 "
Spirit of Camphor	1 "

Mix.

Note.—This is directed to be used in the first stage. When vomiting occurs, and collapse threatens, the following is directed to be used :

II. Tincture of Opium	1 fl. oz.
" " Cardamom	1 "
" " Ginger	1 "
" " Capsicum	1 "

Mix.

4. *Squibb's Diarrhœa Mixture.*

Tincture of Opium	1 fl. oz.
" " Capsicum	1 "
Spirit of Camphor	1 "
Purified Chloroform	3 fl. dr.
Alcohol, enough to make	5 fl. oz.

Mix.

5. *Loomis' Diarrhœa Mixture.*

Tincture of Opium	4 fl. dr.
" " Rhubarb	4 fl. dr.
Compound Tincture of Lavender	2 fl. oz.
Oil of Sassafras	40 drops.

Mix.

Note.—The directions given are: "Take a fluidrachm after each movement. Should the above mixture fail to act, add to it 1 fl. oz. of Tincture of Catechu."

Semi-Annual Report on Drugs and Chemicals.*

Acetico-Tartrate of Aluminium—in 50 per cent solution, has been on the market for some time, and is used, when properly diluted, as a gargle or local application in diphtheritic or other diseases of the mucous membrane of the nose or throat.

Aethoxy-Caffeine.—See this article under *caffeine.*

Antifebrin—[on which an article elsewhere in this number should be consulted] is reported to be four times as energetic in its action as antipyrin. And as it costs only about half as much as quinine, it is likely to become a dangerous rival of the latter.

Antipyrin.—The hæmostatic properties of this antipyretic drug have been reported on some time ago. Dr. Casati prefers antipyrin to ferric chloride and other hæmostatic remedies, as it leaves the wound entirely clean, and has this advantage (particularly over ergotin) that it is not poisonous even in large doses.

Aseptic Acid—an article of commerce which should not be confounded with aseptol (which is a compound of phenol with the sulphuric acid radical), is said to consist of a solution of

Borax	5 parts.
in Peroxide of Hydrogen 3%.	95 "

Aseptol.—A new name, viz., *sozolic acid*, has recently been proposed for this antiseptic [first proposed by Annessens, of Antwerp; compare the preceding paragraph].

Atropine.—The demands for this alkaloid have been so great that the supply (as prepared by Gehe & Co.) could not always keep pace therewith. The price of the alkaloid is likely to advance.

Balsam of Peru.—Gehe & Co. express the wish that the importers in Hamburg and Bremen should allow the balsam, after arrival, to clarify by standing, whereby the lighter impurities will rise to the top and the heavier ones will subside. The London importers have long been accustomed to follow this practice.

Balsam of Copaiba.—Para balsam has become comparatively scarce and is almost dearer than Maracaibo.

* From Gehe & Co.'s "Handelsbericht" for September, 1886.

Berberine—is still in demand by southern countries. It has only recently been recommented by Arzela as a remedy in recent and chronic malaria, in doses of 1 gramme daily.

Bismuth—has remained very steady in price. Occasional offers below the normal price appear to be due to odd lots of the metal put on the market by small Bohemian mining firms.

Caffeine.—The series of medicinally useful derivatives of caffeine has been increased by the addition of *œthoxy-caffeine.* This is obtained by treating brom-caffeine with alcoholic potassa. It has been found by Dujardin-Beaumetz to be a mild narcotic and sedative, and to render good services especially in migraine, in doses much smaller than those of caffeine.

Caffeine Citrate.—The new British Pharmacopœia directs this compound to be prepared by dissolving equal parts of caffeine and citric acid in water, evaporating to dryness, and powdering the residue. Though the product is, of course, only a mechanical mixture, yet it has the advantage of dissolving to a clear liquid, and to be of a constant composition. Heretofore it had been customary to dissolve caffeine in water with the aid of a sufficient amount of citric acid, and to allow the solution to crystallize, when the largest portion of the acid remained in solution, and the crystals retained at most 5 per cent of it mechanically.

Camphor.—It is reported that the Japanese government has given permission to fell camphor trees in certain districts heretofore untouched. This will probably tend to prevent a material advance in price. Regarding the production of camphor on Formosa, the information is uncertain.

Cinchona Bark.—In the beginning of 1885, the value of bark, in the London market, was 6 to 8 pence per unit, [the "unit" is the amount of quinine found in 70 grains of bark; see this Journal, 1885, p. 157]. Since then it has gradually but steadily fallen, until it reached, at the end of August, 1886, the low value of 3 to 3½ pence. The cause of this is, of course, the enormous increase of shipments of bark from Ceylon, which were as follows:

October 1st to June 30th.	pounds.
1885–1886	12,336,599
1884–1885	8,390,317
1883–1884	6,998,013
1882–1883	4,884,507
1881–1882	1,641,346

The great increase since October, 1885, has created a perfect panic among manufacturers. Every possible explanation was offered to impress the trade with the belief that this increase could not last. So it was reported that the amount of bark now available in Ceylon is only about one-fourth of what it was four years ago. Also, that no new plantations had been started, in spite of the certainty that the price of bark would advance again in a year or so. Again it was said that the excessive export was a consequence of the lack of money of the planters, who wanted to get rid of their Cinchona trees to make room for tea. And further, that many trees were dying off, and that the maximum of production had been already reached; also that planters were anxious to get rid of their bark plantations, as it was reported that large supplies of Java bark would soon be thrown on the market. It was also given out that the barks recently shipped from Ceylon showed a diminished percentage of quinine. This statement, however, has been shown to be unfounded. And, finally, attention was directed to the large quantities of root-bark brought to market, as a proof of the uprooting of plantations, consignments of such bark being not seldom offered which represented some 50,000 trees, etc., etc.

How true these assertions are, and whether there is really any prospect of a diminished output from Ceylon, it is impossible to say at present. The exports from Java are certainly going to increase. And *cultivated* bark is received now also from Bolivia. "East-India" bark [meaning that raised in the Nilgiris and other places in the continent of Asia, in Hindostan, —in contradistinction to "Ceylon" bark] and Jamaica bark have not yet reached any commercial importance. The market of Lisbon, as well as of London, has also received experimental consignments of *African* bark, from Portuguese colonies, which promise well.

Citric Acid.—The lemon crop for the current year is reported to be of about the same unsatisfactory condition as that of last year. Hence, a fall in the price of citric acid is hardly to be expected. In Messina and Catania, the crop is estimated at 50 to 60 per cent, and in Palermo at 40 per cent of an average crop. One factor in this diminished production is the destruction of many small lemon-tree groves in the country districts, the farmers finding it more profitable to cultivate the grape.

Coca.—Large arrivals at Hamburg have caused a further decline in price. Occasionally the stock on hand amounts to 50,000 kilos. Fine green Bolivian coca brings 3 to 4 marks per kilo (about 37 to 50 cents per lb.). Peruvian and Truxilla coca, however, can be had for much less.

The consumption of coca in South America is also reported to be on the increase. This is said to be brought about by a crusade against the enormously increased use of alcohol and morphine, in consequence of which there has arisen a veritable *coca-mania* (which exists also in Europe and the U. S.). It has become fashionable in South American cafés to furnish *soda-water with coca, coca-wine, coca-cordial,* and a mixture of coca, chocolate, and coffee, which has received the name *cocabola.*

Cocaine.—Numerous invoices of crude cocaine are now sent to Europe from Lima, which materially interfere with the manufacture of the alkaloid in Europe.

Cod-liver Oil.—The cod fishery along the Lofoden Islands and the whole coast of Nordland (northern part of Norway) has been very productive, the total yield being 17,000 tons of steam-refined oil, and 57,000 tons of other qualities, against 14,300 and 37,000 tons in the preceding year. The fine yellow medicinal cod-liver oil, which has turned out this time to be superior in appearance and taste to the product of former years, has not been made in the usual quantities.

Codeine—as a hypnotic must be administered, according to Schneider, in much larger doses than was formerly supposed to be necessary. If given in doses up to 1 gramme (15½ grains) every 3 hours, it will be found to have sure effects. [The difficulty with the use of codeine in such quantities is only this, that it is so much higher in price, and that anything like an increased consumption, or an attempt to substitute it for morphine, will advance its cost still further. Physicians do not always know the cost of the medicines which they prescribe. Several cases have come to our knowledge recently, where codeine had been ordered in considerable amounts, and the inroad upon the pocket of the patients was so great that they concluded to do without a medical adviser.]

Ergot.—The stock on hand has become very small. If it is true that but little has been collected in Russia, a considerable advance must be expected. And, in fact, the price has already risen 10% in Hamburg. Offers from Spain have so far not been received either. The imports at New York have amounted, during the past few years, on an average to 112,000 lbs. per year.

Extract of Cannabis Indica.—The chief consumption of this extract, according to Gehe & Co. (referring, of course, to the German market), appears to be for the preparation of the *salicylated collodion,* or corn remedy. For this purpose it is preferred of a handsome green color.

Extract of Ergot.—Gehe & Co. state that, as soon as enough of the fresh crop of ergot shall have reached them, they will undertake the manufacture of an alcoholic extract containing cornutin and sphacelinic acids, such as is proposed by Dr. Kobert. The name at present proposed for this preparation is *Extractum Secalis Cornuti cornutino-sphacelinicum Koberti.* [A shorter name will have to be invented for this.] As this extract is stated by Dr. Kobert to be prone to lose its efficacy by long keeping, it will be advisable to put it up in pills, which might be coated with collodion or keratin.

Formic Acid.—A strong acid of the spec. gr. 1.200 has been in active demand for the preparation of the so-called Hensel's Tonic. The formula for this, as given by the *Pharm. Centralhalle* (1882), is as follows:

HENSEL'S TONIC.

Marble Dust	30 parts.
Formic Acid, sp. gr. 1.200	55 "
Sulphate Iron, cryst	21 "
Solution Tersulphate Iron, sp. gr. 1.318	100 "
Glacial Acetic Acid	300 "
Alcohol, sp. gr. 0.830	400 "
Acetic Ether	15 "
Water	q. s.

Dissolve the Marble Dust in the Formic Acid diluted with 300 parts of Water. Mix the Glacial Acetic Acid with 300 parts of Water, dissolve in the solution the crystallized Sulphate of Iron, then add the Solution of Tersulphate of Iron, and afterwards the first-mentioned solution containing formate of calcium. Next add the Alcohol, and lastly the Acetic Ether, provided the preparation is to be employed at once. If the liquid can be allowed to stand for some time, the ether will develop of its own accord. The mixture will contain a precipitate of sulphate of calcium which is to be separated by filtration.

Ginger.—The unusual low quotation of Bengal Ginger does not appear to have frightened the producers or shippers of this brand. The other kinds were also available in considerable quantities and of good quality. African ginger is preferred for purposes of distillation.

Goa Powder.—The supply of this substance from Brazil has been very limited.

Gum Arabic.—The old routes of supply being practically closed, arrival of new stock is scanty and precarious. Had not the deficiency been supplied by other kinds of gums which were found suitable for certain kinds of manufacture, the price of the drug would certainly be much higher. The substitutes, such as East Indian, Amrad, Ghatti, Aden, and other gums have recently likewise advanced, and the same has taken place with gum Senegal.

Homeriana.—This nostrum, first recommended by a certain Homero, of Trieste, and said to be a South-Russian medicinal plant, appears to be still alive. It is nothing else but the common knot-grass (*Polygonum aviculare*). According to Falconi, this weed is said to have been very efficacious in treating cholera. [This is evidently a last gasping struggle for existence. The next we will hear of it, will be as a patent medicine.]

Hydrofluoric Acid has been recom-

mended by Chevy as a powerful antiseptic in tuberculosis, diphtheria, and septic wounds. The gaseous acid is said to be respirable without injury if diluted with air in the proportion of not less than one to 1,500.

Hyoscine.—The pure alkaloid is amorphous, and appears as a colorless, viscid syrup, which is difficultly soluble in water. The hydrobromate, being the most soluble salt, deserves the preference. Its internal administration requires great caution. For eye-drops (to dilate the pupil) a solution of 1 in 1,000 is sufficient. For hypodermic injections (as a hypnotic) a dose of $\frac{1}{600}$ to $\frac{1}{150}$ grain; and internally, in doses of $\frac{1}{150}$ to $\frac{1}{64}$ grain.

Iodine.—The supply on hand is said to be so great that a fall in the price is shortly to be expected. [This has already taken place to some extent.]

Iodol—though it has the advantage over iodoform of being odorless, or nearly so, does not seem to make much headway, probably owing to its high price.

Jalap.—The main shipments of jalap have been landed at Hamburg instead of at London.

Kefyr.—The Kaukasian method of preparing fermented milk has found much favor, almost every large city of Germany (also of many other countries) possessing a kefyr-establishment. Gehe & Co. remind their readers that the kefyr-ferments require soaking before they are suitable for use. A quart of milk requires for its conversion into kefyr about 160 grains of the ferment. The latter is not rendered inert thereby, but may be used repeatedly, if it is washed, after each use, with distilled water and a little soda, so as to remove adhering particles of fat and any acid present.

Laminaria.—Heretofore this has been employed only in form of tents. A demand has now also arisen for it in form of powder.

Lanolin—as a base for ointments, is becoming more universally used.

Maté—or Paraguay Tea is only used medicinally, and finds no favor as a beverage. In preparing maté-tea, by the way, it is important to allow it to "draw" not longer than 2, or at most 3 minutes.

Menthol, Japanese—in crystals has dropped to one-half of its former price, in consequence of the excessive production of peppermint during the last few years. Japanese farmers are reported to have uprooted their mulberry plantations in order to grow peppermint. The liquid oil, after the crystals are extracted, finds but little favor or use, owing to its disagreeable taste. It is, at most, employed for purposes of adulteration. The Japanese government has made official inquiries regarding the quantities of menthol which are likely to be consumed in Europe and America, as well as in respect to methods by which the quality of the oil may be rendered equal in reputation to other native products.

Oil of Petit Grains.—The Paraguay oil, which has been of superior quality, is at present out of the market, but new supplies are expected. [We have had a small quantity of this oil, and certainly found it the finest we ever saw.—Ed. Am. Dr.]

Oil of Sandalwood.—The recent revival of the use of this oil for diseases of the urinary organs (gonorrhœa, etc.) has caused an increased consumption both of the East Indian and the West Indian oil. [The latter is not derived from a sandalwood at all.] Gehe & Co. think that the East Indian oil deserves the preference.

Oleoresin of Male Fern.—The consistence of this preparation, made in accordance with the Pharm. Germ. II., is much thicker than has been customary heretofore. Gehe & Co. think this a great improvement, as the new preparation does not deposit felicin. [In this condition it also corresponds to the requirements of the U. S. Ph.]

Papayotin—has become cheaper, and will therefore probably find a more extended employment. While its effects are acknowledged to be highly satisfactory in membranous croup, it is found to be useless in the infiltrated form. The best method of application is said to be in solution as follows:

Papayotin.....	5 parts.
Distilled Water.....100	"

Paint the parts every twenty or thirty minutes.

Gehe & Co. have examined the digestive power of different lots of papaya-juice, and found it to be from 20 to 70 times greater than that of the dried juice, which is used in the preparation of papayotin. The juice of fresh figs (from *Carica Papaya*), grown in Germany, was found to digest 40 times its weight of coagulated albumen.

Phosphorus.—A Russian factory has recently been erected for the manufacture of phosphorus. It is reported that the amorphous or red phosphorus put on the market by it, contains only about 80% of pure phosphorus, the other 20% being powdered hæmatite.

Peptones.—The dry forms sold by Gehe & Co. are prepared by the aid of pepsin, without the aid of acids, soda, or trypsin. The bitter taste of the dry peptones is best masked by adding about 25 per cent of dried extract of beef (prepared in vacuo).

Quinine.—The present price does not cover the expense of manufacture. Nevertheless, the factories turn out more than can be consumed. Commercial interests do not readily permit a diminution of production, and manufacturers want to be fully prepared for the period of advanced prices. American manufacturers find it now more advantageous to purchase quinine made on the continent of Europe, and to sell it under their own labels, than to make it themselves. [This is not true of all American manufacturers.]

In former times, when South American barks were exclusively used in the manufacture of quinine, the well-known so-called Liebig's test for the absence of other cinchona alkaloids, viz., with ammonia and ether, was perfectly sufficient. At the present time, when barks rich in cinchonidine are worked, the presence of the latter alkaloid in the commercial product is almost unavoidable [and the ether-ammonia test is no longer fully reliable]. It is well known that all sulphate of quinine of bulky, feathery, and light appearance contains sulphate of cinchonidine. To adopt de Vrij's proposition, viz., to use only the bisulphate in medicine, appears to be of doubtful propriety, as one-half of the acid in this salt is uncombined, and when taken internally, perhaps in frequent intervals, would produce gastric disturbances.

Rhubarb—has not yet improved much in quality. Really handsome Shensi root is still unobtainable, but even the Canton and Shanghai sorts leave much to be desired, the bad management during drying having produced a dark, horny exterior, and a gray, spongy fracture. During the first seven months of this year, London received 762 chests, while 1,087 chests were disposed of. On August 1st, there were still on hand 1,726 chests, mostly of an inferior kind.

Salol.—This recently introduced substance, which is the salicylate of phenylic ether (see our last September number, p. 177) was first used by Dr. Sahli as a substitute for salicylate of sodium, where this was found to disagree with the stomach. The therapeutic results, in cases of rheumatism, were so favorable that it is probably going to be a standard drug. The reason why salol is so easily borne by the stomach is said to be this, that it is not split into its component parts, salicylic acid and phenol, until it has reached the intestines. The dose of salol varies according to circumstances, but may amount to as much as 8 Gm. (about 2 drachms) per day.

Sapo Centrifugalis.—"Centrifuged" soaps owe their existence to Liebreich's original patent for saponifying oily fruits. These are first ground, then saponified in large boilers, and the soap separated from the cellulose by centrifugal machines. By repeating this process, hot, upon the soap first obtained, very fine medicinal soaps, of perfect neutrality and very good keeping qualities, may be obtained.

Spermaceti—which has already advanced to three times its former value, is liable to rise still higher, if the reports of the poor results of the whaling fleet turn out to be correct.

Storax.—The consumption of liquid storax appears to have considerably increased during the last few years. At least the large quantities which reached Trieste have easily found purchasers. [It would be of interest to ascertain for what purposes these large quantities of storax are consumed.]

Tea.—How important a rôle the East Indian tea plantations play in the supply of this commodity to the world, and more particularly of England (where Japanese teas are not much liked), may be seen from the following table, giving the quantity of tea imported at London during the first *six* months of the two years, 1885 and 1886.

Imports.

	1885.	1886.
Chinese,	20,989,000	34,966,000
Japan,	43,000	23,000
Java,	1,739,000	2,159,000
India,	20,479,000	24,548,000
Ceylon,	1,385,000	3,043,000
Total,	44,635,000	63,739,000

Terpinol—has been recommended by Dujardin-Beaumetz as an expectorant in bronchial catarrh, in combination with bromide of sodium, his formula being:

Terpinol.....	16 grains.
Bromide of Sodium.....	16 "
Sugar.....	q. s.

Make 10 pills.

Daily dose: 5 to 10 pills. (Compare our April number, p. 64.)

Thalline—as an anti-pyretic, is highly useful, particularly in cases of phthisis, where it affords relief even in the most hopeless cases. Under its effects, feverish and enfeebled patients are able to remain out of bed for many hours, and time is thereby gained in acute cases.

Tonka Beans—have been scarce and dear. The new crop in Angostura is reported to have been very good, between 200,000 and 300,000 pounds. It remains to be seen whether the New York speculators will succeed in maintaining their monopoly of this article.

Modified Compound Licorice Powder.

Dr. Martin Oxley writes, in *The Lancet:* Having found that compound licorice powder produced very severe griping in many instances, especially in young patients, he substituted anise for the fennel, and added a fourth part of ginger. The modified formula consisted of

Powdered Senna,	
Powdered Licorice Root.....	āā 2 parts.
Anise,	
Sulphur.....	āā 1 part.
Sugar	5½ parts.
Powdered Ginger.....	¼ part.

This is quite as satisfactory in its effects, is less liable to cause griping, and is as pleasant to take as the original formula.

A new Reagent for Free Acids.

A RED coloring matter recently discovered by Böttger, which has received the commercial name "Congo-red," has been found to possess the property of changing its red tint into blue, under the influence of acids. A dilute alcoholic or aqueous solution of the substance has a bright-red color, and this is altered by acids to a handsome blue. The test is best applied in practice by impregnating filtering paper with the reagent, and this paper is in the market under the name Congo-paper. It is said to indicate the presence of so small a quantity as 0.0019 per cent of a free acid.

Heretofore this test-paper has been principally employed by paper manufacturers as an indicator for free sulphuric acid. Dr. Rud. v. Hoesslin now proposes it for clinical purposes.

Supposing that a specimen of gastric juice is to be tested, it is only necessary to place a drop or two (removed either with a sound or bougie, or obtained by vomiting) upon the reagent paper. If the latter assumes a blue color, free acid is present alongside of the acid salts. If only acid salts are present, the color of the paper remains unchanged. *Acid urine*, for instance, produces *no* change of color.

When the tint of the paper has been changed to blue, the question will arise, what kind of acid was present? Resuming the example of the gastric juice, it might be asked, was the acid lactic or hydrochloric? If the reaction was very decided, it may be assumed that the acid was hydrochloric, because the latter produces the alteration of color even when highly diluted, while lactic acid, diluted to only 1%, produces a much more feeble change. Of course, a final decision as to the kind of acid can only be reached by chemical tests.

Congo-red and Congo-paper appear to be serviceable for discovering free acids in other combinations.

Congo-red is a derivative of phenol, being prepared from tetrazo-diphenyl by treatment with benzidin and naphthylamine-sulphonic acid.—After *Neueste Erfind. und Erfahr.*, 1886, 375.

The Preparation of Mucilage of Acacia.

IT is now generally accepted that a mucilage of gum arabic prepared in the *cold* is less liable to be muddy or opalescent, and to keep better. Nevertheless, there are occasionally voices heard in favor of the hot method, one of the latest being Mr. H. Notfke in the *Pharm. Zeit.* (No. 63), who says:

"By repeated experiments I have become convinced that the keeping qualities of mucilage of gum arabic are improved by using *hot* water for solution.

"The water is first heated to boiling, then allowed to cool to about 80° C. (176° F.), and this is then poured upon the gum arabic which had previously been carefully washed with *cold distilled* water. The whole is well covered, set aside in a cool place, and frequently stirred. Solution will take place quite rapidly. Any water lost by evaporation is replaced before straining. The straining must be done by passing the mucilage through a woollen strainer, previously washed repeatedly with *distilled* water. The strained mucilage should be filled into small bottles (2 to 8 oz.), which had previously been carefully dried in a drying oven, and must be still *hot* when filled. They should be filled to about three-fourths of the neck and at once corked, the cork, if possible, being pushed down so as to meet the surface of the mucilage.

"Mucilage thus prepared is clear and bright, and, if put up as here directed, keeps well, though it generally becomes faintly opalescent after a few days. But this happens also to mucilage prepared by the cold process.

"If the mucilage is heated in a steam bath, immediately after it has been strained, it will keep still better, but this second heating renders it quite opaque, which is not considered proper."

SOLUTIONS OF ALKALOIDS IN SEALED BULBS.

LIMOUSIN, the French pharmacist, has introduced to the market little globules of glass, in the form illustrated, containing, each, one cubic entimetre of a solution especially intended for hypodermic injection. Before the neck of the bulb is secured by melting the glass, the contents are sterilized and rendered free from destructive germs. The neck of the tube having been broken, the contents can be withdrawn by means of the hypodermic syringe and needle. — *Illus. Monatsch. der ärzt. Polyt.*

A NEW FLY EXTERMINATOR.

T. CHRISTY & Co., of London, well-known from their enterprise in the introduction of novelties, have a substance known as "Myocum," which is used by smearing it upon splints of wood or pieces of string. The latter can be hung vertically, but wooden splints can best be used by the use of an ingenious little wire clip, such as is shown in the figure, and which is so well adapted to other uses, and is so easily made, that we reproduce the illustration from the *British and Colonial Druggist.*

Menthol in Urticaria and Pruritus.—Among the myriads of remedies for these troublesome affections, we have no other which affords such complete and instantaneous relief as a solution of menthol. Not only is the itching relieved for the time, but a cure seems to be effected. In pruritus and in eczema, moistening the parts with menthol solution causes an immediate cessation of the pain. The solution should contain from two to ten grains of menthol to the ounce of water.—*Amer. Jour. of Pharmacy.*

The Hospital Gazette contains a report of a case in which a boy 5 years of age, having eaten sufficient sorrel to cause symptoms of oxalic acid poisoning, drank a quantity of soapy water to quench his thirst. The action of the alkali resulted in the separation of soluble oxalate and death was caused very speedily. Post-mortem examination of the stomach disclosed a considerable amount of the poison.

A SATURATED solution of common salt in cider vinegar, taken in doses of a teaspoonful three or four times a day, is said to be a successful remedy for chronic diarrhœa.

Easy and Rapid Generation of Oxygen Gas.

INTO a generating vessel pour 1 kilogramme of peroxide of hydrogen (3%), and ½ kilogramme of diluted sulphuric acid (1 : 5). Close the vessel with a stopper, through which passes the tube of a globe funnel provided with a stopcock, and which is charged with a saturated (1 : 16) solution of permanganate of potassium. The end of the funnel tube should be drawn out to a point, and turned upwards. On permitting the permanganate solution to pass, drop by drop, into the liquid contained in the vessel, oxygen gas will be given off. To fully decompose the quantity of peroxide of hydrogen, about 56 Gm. of permanganate are required, and 20 liters (about 1,220 cub. inch., or 5.28 gall.) of oxygen are obtained.—*Industrie Bl.*

NOTE OF ED. OF AM. DR.—The chemical reaction which takes place when permanganate of potassium and peroxide of hydrogen react upon each other in the presence of an acid is as follows:

H_2O_2 peroxide hydrogen	+	$2KMnO_4$ permang. potass.	+	$3H_2SO_4$ = sulphuric acid			
= K_2SO_4 sulphate potass.	+	$2MnSO_4$ sulphate mangan.	+	$4H_2O$ water	+	$3O_2$ oxygen	

Hence, *all* the oxygen of the permanganate, and *one-half* of the oxygen of the peroxide are set free.

THE possibility of administering an anæsthetic during sleep has been greatly doubted until recently, but a number of cases have been lately reported in which it has been accomplished. The latest instance is noted in *The Lancet* by Dr. J. Sellarshall. A man whose thigh had been fractured and who had been worn out with pain, and fell asleep before his limb was dressed, was anæsthetized and a dressing applied without awakening.

A CORRESPONDENT of the *Medical News* says that calomel is being tried in Vienna as a diuretic. It is efficacious only when the kidneys are healthy, and in some heart diseases without tissue changes [?] it produced diuresis where other remedies failed. Large doses were used. Salivation was rarely produced. No explanation was offered of its mode of action.

A STRONG infusion of *Capsicum annuum*, mixed with equal bulk of mucilage of acacia and with a few drops of glycerin, is said by a writer in the *St. Louis Med. and Surg. Journ.* to be an excellent application to bruises and to a stiff neck. Two or three successive coatings, applied with a camel's-hair brush, if done immediately after the receipt of an injury, will prevent discoloration.

A DR. TAYLOR advocates in the *Medical World* the treatment of gonorrhœa, by introducing under the prepuce a mixture of morphine and cocaine salts with lanoline to the extent of ¼ grain of the cocaine in each application. He finds this adjunct to treatment produces complete numbness and thereby mitigates the symptoms of the disease.

EXPERIMENTS upon animals by Prof. Coze with urethan show that it antidotes the effects of strychnin. To illustrate the proportions required, a dog weighing 25 lbs. was given ¼ gr. of strychnine, and the poisonous effects were counteracted by 75 grains of urethan.

IODOFORM ointment (1 : 8 or 1 : 10) has yielded satisfactory results to A. T. Selitzky (a Russian physician) as an application to erysipelas. It lessens the swelling, pain, redness, and temperature.

Flower-farming and Perfume Manufacture in Southern France.*

FOR nearly a century the culture of flowers on a commercial scale, and the manufacture of perfumes and essences, have formed a special and lucrative industry in Southern France. The principal mart of this dainty manufacture is at Grasse, in the department of the Maritime Alps, but it is also conducted on a more or less extensive scale at Sommières, Nîmes, Nyons, Seillans, and other points in the consular district of Marseilles. A considerable portion of the product is exported to the United States, and as this export is steadily increasing, it may be of interest to examine the conditions of soil, climate, etc., under which flower-culture has flourished in this country, and to inquire whether the same industry might not be successfully established in certain portions of the United States. It is stated by perfumers here that the manufacture of perfumes from orange flowers has already been attempted in Florida and California, but that the enterprise has failed of complete success, because these essays were made with flowers of the edible orange, grown upon lowlands—conditions which would entail failure even in France, where the bitter and non-edible bigaradier, or the bergamot, grown in locations more or less elevated, is universally used for the production of perfume.

The subject divides itself naturally into two topics: First, the culture of the flowers and blossoms; secondly, the manufacture therefrom of the pomades, essences, and perfumed waters of commerce.

I.—FLOWER-FARMING IN PROVENCE.

The kinds of flowers principally grown, and their season of harvest, are the violet, jonquil, and mignonette, which are usually gathered in February, March, and April, although in mild, moist winters the violets begin as early as December; roses and orange-blossoms, with thyme and rosemary, in May and June; jasmines and tuberoses, in July and August; lavender and spikenard in September; and the acacia in October and November. The harvest of flowers covers, therefore, about three-fourths of the year, but the season of greatest activity is May and June, when the roses and orange blossoms are gathered. Thyme, rosemary, and lavender are among the minor products, grown principally by rural farmers of the grape and olive, who have at home the simple apparatus required to distil the flowers and produce a more or less inferior class of essences, which are used to dilute and adulterate the superior essences produced at the larger establishments in towns and villages.

A TYPICAL FARM.

The conditions of industrial success in flower-growing can be best studied by a specific example, and for this purpose we select the plantation of Madame de Rostaing, at Seillans, in the department of Var. It includes about 23 acres, located on the southern slope of the Maritime foot-hills, about 2,000 feet above the level of the Mediterranean, and perhaps 20 miles from the coast. The calcareous soil was naturally thin and poor, and the olive trees, which had occupied the ground for a century or more, prior to 1881, yielded but scanty and unsatisfactory returns. The slope of the surface was so steep that the waters of a spring, which flows from the rocks above the tract, could be but imperfectly utilized for irrigation, and the land was regarded practically worthless. In 1881 the proprietress caused the olive trees to be removed and the land prepared for flower culture. First, the ground was dug up to a depth of four feet, the larger stones removed and built into sustaining walls for the terraces into which the surface was divided and levelled. Along the upper margin of each terrace a shallow ditch was cut, connecting with transverse channels, which supply the spring-water for irrigation. The abruptness of the slope will be indicated by the fact that, on the tract of 18 acres, the terrace walls required to produce a series of level or gently sloping surfaces are 2,166 yards in length. Thus terraced, the tract yielded 17½ acres of prepared ground for planting. In the autumn of 1881, 45,000 tufts of violet, and 140,000 roots of the white jasmine were planted. The following spring the remainder of the ground was planted with roses, geraniums, tuberoses, and jonquils, and a laboratory erected for the manufacture of perfumes. The location proved to have been well chosen; the flower plants grew vigorously and strong, and in 1885, the fourth year after planting, the flower farm of Seillans, which had previously yielded a rental of $115 a year, produced, according to the statement of the proprietress, perfumes valued at $43,154, and giving a net profit of $7,767.86!

The difficult nature of the ground had made its preparation unusually laborious and expensive, but in the foregoing balance sheet for 1885 interest on the entire investment is included in the expense account, so that the profits as stated purport to be clear and legitimate. Of course, the plants and shrubs at Seillans have not yet reached their full productive capacity, but the results of the fourth year illustrate sufficiently how lucrative flower-farming may become in favorable locations and under good management.

ESSENTIAL CONDITIONS.

From observations at Seillans, and in the neighborhood of Grasse, where perfume-flower-growing is the leading branch of agriculture, the essential conditions appear to be:

(1) An altitude of from 500 to 2,000 feet. Flowers grown on such elevated locations are said to be far more rich in perfume than similar varieties which bloom in valleys and lowlands.

(2) A soil rich in calcareous elements.

(3) A situation sheltered from cold northern winds, and not subject to the white frosts which, in spring and autumn, affect the damp lowlands.

(4) In countries like Southern France, where the rainfall is always scanty and often wanting entirely from May until September, irrigation is essential to the culture of flowers, as well as every other crop: but it would seem that in the vast expanse of the United States, between the thirtieth and fortieth parallels of latitude, there might be found locations which combine all the requisite conditions of soil and exposure with sufficient humidity to secure natural and prolific growth.

There remains, finally, the somewhat vague and intangible question as to how far usage and experience are really essential to success in flower-growing and perfume manufacture. The people of Southern France are prone to believe that certain things peculiar to this country can never be successfully produced elsewhere. The gourmand of Marseilles will tell you that "*bouille-abaisse*," the famous "plat" of fish and toast flavored with saffron, can never be well made outside of Marseilles; the confectioners of Provence have no fear that their glazed and crystallized fruits can ever be successfully imitated beyond the frontiers of France; and, similarly, the perfume growers and distillers along this coast attribute their success not less to the peculiar climate of the Provence than to their minute knowledge of every detail of the business, a knowledge acquired by more than a century of experience and transmitted from generation to generation of these simple, industrious people. Switzerland used to cherish similar ideas about watch-making and the embroidery manufacture, but both have been developed with entire success in other countries, and it is impossible to see in the perfume manufacture any art so obscure or difficult that it may not be learned and practised successfully in any part of the United States which offers the requisite conditions of climate.

One essential principle in perfume culture is that all fancy and "improved" varieties of flowers are discarded, and the natural, simple, old-fashioned kinds are exclusively grown. The roses on the slopes of Seillans are the common pink ones that grow under farm-house windows throughout the United States. The single wild violet is preferred to all the larger artificially developed varieties, and if there is a "double" tuberose on the place, I failed to notice it.

Only the white jasmine is used, the yellow and less fragrant variety seeming to be either discarded or unknown. Jasmine plants are set in rows, about ten inches apart, and are closely pruned. Roses are grown on the lower terraces, and are likewise cut low, and the ground between the plants heavily manured. After the roses have been gathered, the stem is cut to within a few inches of the ground so as to conserve for next season the entire vigor of the plant. During the harvest season, traders, or middlemen, go through the country every day with wagons collecting flowers from the farms, for which they pay prices varying according to the extent of the crop and demands of the market. Their fragrant load is hurried to the nearest manufacturer and delivered while the flowers are still fresh and crisp. The flowers should be gathered in the morning as soon as possible after the dews of the preceding night have disappeared.

II.—THE MANUFACTURE OF PERFUMES.

This includes the making of "pomades" and oils by the process of absorption, and of essences and essential oils by distillation. Every complete establishment is equipped with apparatus for all these processes. Pomades are the commercial vehicles for absorbing and transporting the perfumes of the jonquil, tuberose, jasmine, and some other species of flowers. A square frame, or *chassis*, of white-wood, about 20 by 30 inches in size, is set with a pane of strong plate glass. On either side of the glass is spread a thin, even layer of grease—two parts lard to one of tallow—which has been purified and refined by previous boiling and straining. Thus prepared, the frames are piled up in ranks 6 or 7 feet high to await the season of each special flower. When the blossoms arrive, the petals are picked from the stem (the pistils and stamens being discarded), and laid so as to cover the grease in each frame. These being again piled so as to rest upon their wooden edges, which fit closely together, there is formed a series of tight chambers, the floors and ceilings of which are of grease exposed to the perfume of the flower leaves within. The grease absorbs the perfume, the spent flowers are removed daily and fresh ones supplied, and this process goes on from two to four or five months, according to the desired strength of the pomade, which, when sufficiently charged with perfume, is taken from the glass with a wide thin spatula, and packed in tin cans or "stagnons" for export. By these methods the delicate odors of flowers are extracted, and retained for transport to distant markets, where, being treated with alcohol, they yield their perfume to that stronger vehicle, and

* Report of Consul Mason, of Marseilles.

produce the floral waters and extracts of commerce. Coarse pomades are made by boiling the flowers in the grease, and subjecting the residue to pressure. The spent pomades are used for toilet purposes, and in the manufacture of fine soaps.

OILS AND ESSENCES.

The process of preparing perfumed oils involves the same principle, except that, instead of solid grease, superfine olive-oil is used. With this oil, pieces of coarse cotton fabric are saturated, which are then spread upon wire netting, framed in wooden chases about 3 by 5 feet in size. The flowers are spread upon the saturated cloths, and the frames piled one upon another so that the perfume of the flowers is absorbed as in the previous process.

Essences and "flower waters" are produced by ordinary distillation, in which the flowers are boiled with water in large alembics: the vapor carries off the perfume, and is condensed in adjoining copper tanks, like ordinary spirits. Some of the retorts used for this purpose are of sufficient size to receive at once half a ton of fresh flowers, with the requisite water for their distillation. When "flower waters" are to be produced, alcohol is used in the distilling tank to receive the perfumes. By skilful combinations of the perfumes of different flowers, sometimes with the addition of chemicals, a large variety of handkerchief extracts, such as "Patchouly," "Jockey Club," "West End," etc., are produced at the original laboratory.

All these details of manufacture require careful and skilful manipulation, but there would seem to be no part of the process which cannot be promptly mastered by any good chemist, with sufficient enterprise to import a few experienced French operatives. A mild, uniform temperature is secured by the heavy stone buildings in which the process of absorption is conducted, and scrupulous cleanliness is required at every stage of the manufacture. After removing the pomades from the frames, the glass is removed and cleansed with alkalies, and the frames scraped to remove every vestige of grease, which, by becoming rancid, might spoil the product of the next operation.

The work of the manufactories is largely done by women, who earn 20 to 25 cents in a day's labor of ten hours. During the busy season of roses and orange flowers, they earn half as much more by working until midnight or later. Laborers on the flower farms earn the modest wages which pertain to all kinds of agricultural labor in this country, for there is nothing in the culture of flowers that is beyond the skill and understanding of an ordinary farm-hand, when directed by an intelligent and experienced overseer. As the wealth and popular taste for luxuries in the United States have continued to increase, our country has absorbed a constantly increasing proportion of the perfume product of Southern France. If the low wages that are now paid for the labor of girls and women in many forms of manufacture in American cities could be utilized in districts adapted to flower-growing, it would seem that the essential conditions for transplanting that fragrant and lucrative industry to the western hemisphere would be practically complete.

Marking Ink for Sacks.

Asphalt	1 oz.
Canada Balsam	1 "
Oil of Turpentine	4 "
Drop Black	q. s.

Dissolve the two first-named ingredients in the Oil of Turpentine, and add enough Drop Black to make a cream.—After *Chem. and Drugg.*

Gelosin.

GELOSE, which corresponds to the *fucin* of algæ and *pectose* of fruits, is a mucilaginous substance derived from certain Japanese algæ. It dissolves in hot water in the proportion of 550 times its volume, and, on cooling, forms a beautiful transparent jelly, which may be made to take any form, and its consistence can be varied to suit the occasion.

It will take up all medicinal substances soluble in water alone, or made so by the addition of alcohol, glycerin, acids, or alkalies. It may be used for medicated poultices, suppositories, cylinders, plates, or sheets. While drying it undergoes continuous retraction, by which, it is said, its medicinal contents are slowly expressed.—*Amer. Jour. of Med. Sc.*

[Gelose has been used for some time by French silk manufacturers for "weighting" the silk fibre, so as to impart a fictitious appearance of body to fabrics.—ED. AMER. DRUGGIST.]

Belgian Putz-Powder

FOR cleaning gold, silver, and other metals is prepared from :

Chalk	250 parts.
White Bole	100 "
Carbonate of Lead	125 "
Magnesia	20 "
Oxide of Iron	20 "

The mixture must be absolutely free from gritty particles.

"Putz-Rags."

THESE are woollen cloths or rags treated with some kind of "putz-pomade," and are usually tinted or dyed red. They are usually prepared as follows :

Four parts of Castile soap are dissolved in 20 parts of water ; the solution mixed with three parts of Tripoli, and tinted with fuchsin or corallin. Woollen rags are now dipped in the mixture, which must be stirred continuously, the excess of the mixture wrung out, and the rags then dried. The tripoli must be in an impalpable powder.

Dental Local Anæsthetic.

A CORRESPONDENT of *Dental Cosmos* recommends the following solution, which enables one or two teeth to be extracted at one sitting and under greatly diminished pain:

Stronger Ether	℥ iss.
Menthol	ʒ i.
Fl. Ex. Cannabis Indica	gtt. xx.
Ol. Menthæ Piperitæ	♏ xv.

Misce.

Saturate absorbent cotton with a small quantity (about sixty drops) of the compound and apply to the gums, allowing it to remain about five minutes before operating.—*Chem. and Drugg.*

Varnish for Show-Bottle Labels, which dries in a few seconds, and produces a colorless, smooth, and shining coat, is prepared, according to R. Kiersten, as follows: Sandarac, 53 parts; mustic, 20 parts; camphor, 1 part; oil of lavender, 8 parts; Venice turpentine, 4 parts; ether, 6 parts; alcohol, 40 parts.

Macerate the ingredients for several weeks, until a perfect solution is made. —*National Druggist.*

To Clean Tartar from Teeth.—Dry Hypochlorite of Lime, ½ drachm; Red Coral, 2 drachms. Triturate well and mix thoroughly. To employ it, moisten a new brush slightly, dip it into the powder, and apply to the teeth. A few days' use will produce a marked alteration in the appearance of the teeth. —*Sci. Amer.*

Chloral and Menthol is suggested by H. V. BECKER as a new compound. Equal portions being triturated and heated in a water-bath, not above 96° Fahr., until completely liquefied, produces an oily, colorless liquid having a mint-like odor, a camphoraceous, warm taste, and at 58° F. a. s. g. of 1.1984. It is completely soluble in all proportions of alcohol, freely soluble in benzin, and soluble in chloroform, ether, and carbon bisulphide.—*Amer. Jour. of Pharm.*, June.

Permangate of Potassium in solution, to the amount of one to two grains to the ounce of water, is recommended as a serviceable application to burns and frost bite. Züboff says that in the latter condition, especially, it relieves pain, allays inflammation, and prevents suppuration. One-half grain to the ounce is sufficient for application to burns.—*N. Y. Med. Jour.*

Naphthalin Lamellæ are prepared by applying a melted mixture of 25 parts of carbolic acid, 25 parts of ceresin, and 50 parts of naphthalin to the surface of unglazed paper placed upon a warm, metallic surface.—*Pharm. Zeitung.*

To Clarify Turbid Fruit-Syrups.—According to the *Rundschau*, this is best accomplished by the means used for clarifying honey. Heat the syrup in a copper or tin-lined kettle to about 80° or 90° C.; then stir in fragments of filter-paper, and allow it to boil again, stirring it meanwhile. Strain through a funnel-shaped flannel bag, and repeat the straining until it runs clear.—*National Druggist.*

Elastic Mucilage.—To 20 parts of alcohol add 1 part of salicylic acid, 3 parts of soft soap, and 3 parts of glycerin. Shake thoroughly, and add it to a mixture of mucilage made with about 93 parts of gum Arabic and 180 parts of water. This is said to keep well and to remain elastic without tendency to cracking when dry.

Florida Water.—2 drachms each of the oils of Lavender, Bergamot, and Lemon; 1 drachm each of the Tincture of Turmeric and Oil of Neroli; 30 drops of Oil of Balm, and 10 drops of Oil of Rose. Mix these with 2 pints of deodorized Alcohol.—*Sci. Amer.*

The Specific Gravtiy of Crystalline Strychnine is given by Thomas P. Blunt, in the *Pharm. Jour. and Trans.* as 1.13.

Tin Oleate for the Nails.—Thomas H. Irquhart writes to the *Therapeutic Gazette:* "I used tin oleate some months ago on my finger nails, which commenced to split and break soon after I left the army, the result of scurvy, contracted in the military service. I anointed the nails every day with the oleate, and at night applied it on a narrow flannel bandage. In about two months all the nails were sound and tough. I applied the oleate to the nails of a young lady friend, with like success. It is also a beautiful polish for the nails."

Thalline.—Mayrhofer has experimented with the sulphate, tannate, and tartrate of thalline in an epidemic of typhoid occurring in a Bavarian regiment, with a view to discovering which is the best salt. As a rule, 0.2 gramme was given at a dose, and repeated as the temperature rose. The quantity consumed was 1 to 2 grammes *per diem*, and from 8 to 26 grammes in different cases. No difference was observed in the action of the three salts. After taking the medicine, profuse perspiration occurred, and the condition of the patients invariably improved. Of the eighty-eight cases, three (3.4%) died.

CORRESPONDENCE.

GENTS:—I see by an article in *Scientific American*, copied from your journal, that oils are distilled from cedar chips or shavings. In Wisconsin and Vermont, cedar and balsam and hemlock oils are all distilled from second growth timber, and from the boughs of large trees. I will commence to distill those about the 15th or 16th of Oct. The brush is all cut up by a large cutting machine, such as they use in large *farm barns*, but is run by steam. Almost all the work is done by steam. Can give you any information you want. Yours,

M. MCDONALD.

STURGEON BAY, DOOR CO., WIS.

QUERES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 1,781.—Syrupus Corrigens (F. R. H.).

Our correspondent asks us what "Syrup Corrigans" is. He no doubt means *Syrupus Corrigens*, a title applied to various aromatic syrups, devised for the purpose of disguising the bitter taste of quinine. Some of these syrups have liquorice for a base; but this is rather inconvenient, as the glycyrrhizin will gradually combine with and be precipitated along with the quinine, even when there was no acid present.

An aromatic syrup of Yerba Santa (Eriodictyon) has for several years been sold by different makers for such purposes, and on page 41 of our last March number will be found a formula proposed by Mr. J. D. Aug. Hartz, of College Point, N. Y., which furnishes a very good preparation. The object, in this case, is not to retain in the syrup any medicinally useful constituents which the Yerba Santa may contain, but rather to obtain the peculiar taste and flavor produced in the course of preparation. Mr. Hartz proposed the title *Syrupus Corrigens* for his syrup.

Another formula for an aromatic syrup of Yerba Santa is the following, which also furnishes a very good result:

Syrupus Eriodictyi Aromaticus.

Fluid Extract of Yerba Santa	½ fl. oz.
Solution of Potassa	180 min.
Comp. Tincture of Cardamom	1 fl. oz.
Oil of Sassafras	2 min.
" " Lemon	2 "
" " Cloves	4 "
Alcohol	½ fl. oz.
Sugar	14 tr. oz.
Water enough to make	16 fl. oz.

Mix the Fluid Extract and solution of Potassa, then add 1½ fl. oz. of water, previously mixed with the Compound Tincture of Cardamom, and lastly add the Alcohol holding the oils in solution. Filter and pass enough Alcohol through the filter to obtain 6 fl. oz. of filtrate. Pour this upon the Sugar contained in a bottle, and dissolve by placing the bottle in hot water, frequently agitating.

No. 1,782.—Brunswick Black (T. G. S., Adelaide).

This is a black asphalt varnish for iron-work, prepared in the following manner:

Fuse 2 lbs. of best native asphaltum in an iron pot, add 1 pint of hot boiled linseed oil, mix well, remove from the fire, allow to cool somewhat, then add ½ gallon oil of turpentine. If it is desired to dry quickly, add some patent drier.

A cheaper preparation may be made as follows:

Boil together 2½ lbs. each of black pitch and gas-tar asphaltum for several hours, then add 6½ pints of linseed oil, and 1 lb. each of litharge and red-lead. Boil again, and finally add 2 gallons of oil of turpentine.

No. 1,783.—**Asphaltum** (T. G. S., Adelaide).

The best and purest native asphaltum is found at certain localities of the shores of the Dead Sea, in the Great Pitch Lake of Trinidad, and near Coxitambo in Peru. If you desire to import some into Australia, you will find it most convenient to get the last-named variety, which is very pure. Apply to some firm having dealings with Lima or Callao.

No. 1,784.—**Compound Syrup of Sarsaparilla** (D. F. & Co.).

If your friend wishes to obtain the best preparation, he had better procure that made strictly in compliance with the United States Pharmacopœia. Any pharmacist will show him the formula, which we cannot copy here as it will consume space needlessly.

If he wants a preparation similar to some of the popular advertised syrups of sarsaparilla, you should remember that most of these do not base their efficacy upon the sarsaparilla, but upon certain other ingredients, among which iodide of potassium and even bichloride of mercury are not wanting, but which are carefully ignored on the label.

Our advice is, if your friend is in need of a preparation containing these secondary constituents, let him consult a physician. If he does not, then the officinal syrup is all that he requires.

We cannot recommend any of the proprietary preparations, though some may be good enough in their way.

No. 1,785.—**Hostetter's Bitters** (J. R. K. & Co.).

A formula for Hostetter's Bitters was communicated to this journal (NEW REMEDIES, 1883, pp. 313) by Mr. C. M. Shofer, Ph.G., of Canal Fulton, Ohio. It is as follows:

Calamus	2 lbs.
Orange Peel	2 "
Cinchona	2 "
Gentian	2 "
Colombo	2 "
Rhubarb	8 oz.
Cinnamon	4 "
Cloves	2 "
Diluted Alcohol	4 gall.
Water	2 "
Sugar	2 lbs.

We cannot say whether the product resembles the genuine.

No. 1,786.—**Emulsion of Balsam of Tolu** (D. J.).

This is a preparation of the French Pharmacopœia. It is prepared as follows:

Balsam of Tolu	20 parts.
Alcohol, 90%	100 "
Tincture of Quillaia	100 "
Distilled Water, hot	780 "

Dissolve the Balsam of Tolu in the Alcohol, and add the Tincture. Then make an emulsion by adding the water gradually.

The *Codex* adds the note that emulsions of Balsam of Copaiba, Oil of Cade, and Tar may be prepared in the same manner.

No. 1,787.—**Disguising Quinine** (J. O.).

Phosphate of sodium as an agent to disguise the taste of quinine was recommended by F. Lascar, in a paper read at the last annual meeting of the Louisiana Pharm. Association. The author recommended the following mixture:

Sulphate of Quinine	1 part.
Sugar of Milk	1 "
Phosphate of Sodium	2 parts.

These substances are to be triturated together, which will cause the sulphate of quinine to be converted into the phosphate, a less soluble salt than the sulphate. The author also recommends to add to the mixture ¼ or ⅛ grain of saccharin for every grain of quinine.

No. 1,788.—**Phosphorus Paste** (O.).

The following is one of the formulæ recommended:

Make a paste in the usual manner, from 800 parts of starch and 5,000 parts of water, by the aid of heat, and cool it to about 86° F. Dissolve 150 parts of phosphorus in 60 parts of disulphide of carbon, with great caution, in a glass-stoppered vial. Add the solution to a paste prepared from 10 parts of powdered gum arabic, 15 parts of powdered tragacanth, and 150 parts of water, contained in a suitable mortar, and mix intimately. Finally add this emulsion to the starch paste first prepared, mix thoroughly, and transfer the paste to wide-mouthed vials which must be carefully stoppered.

No. 1,789.—**The Administration and the Purity of Terebene** (W. S. D.).

It has recently been recommended (in *Therap. Gaz.*) to administer terebene in lozenges, and the following formula is suggested:

Terebene	3½ drachms.
Acacia, powd	3 "
Sugar, powd	6 tr. oz.
Tragacanth, powd	2 tr. oz.
Water	2 fl. oz.

With the Terebene, Acacia, and Water, make an emulsion, which is to be mixed with the Sugar and Tragacanth, and the resulting mass is to be made into 100 lozenges.

Another formula of administration, viz., an emulsion, is recommended in the same paper:

Terebene	4 drachms.
Acacia, powd	3 "
Water, q. s. to make	2 fl. oz.
Syrup of Ginger	1 fl. oz.

Triturate the Acacia and Terebene thoroughly together in a dry mortar, then add the water all at once, rubbing rapidly until a crackling sound appears. Then add the Syrup of Ginger. The latter imparts some color to the emulsion, but it helps to cover the taste of the terebene.

Regarding the *purity* of terebene of commerce, notice should be taken of the statements made by Mr. W. L. Scott, in a paper read before the last British Pharmaceutical Conference. He found that most of the commercial so-called "pure terebenes" are contaminated with resin, turpentine, and peroxide of hydrogen. Three samples contained over 1 per cent of resin, and only four of them were free from peroxide of hydrogen, which, according to the author, is very liable to be present, no matter how carefully the terebene had been prepared. Its formation may be prevented by keeping a bag of silver oxide in the liquid.

No. 1,790.—**Enamel-Ink** (B. J.).

An ink, or rather varnish, for writing labels which are intended to resist the action of acids, etc., may be prepared as follows:

20 parts of shellac are dissolved in solution of 30 parts of borax in 300 to 400 parts of water, with the aid of heat, and the solution is filtered hot. To the filtrate are added 10 parts of water-soluble nigrosin, 0.3 parts of tannic acid, 0.1 part of picric acid, 15 parts

of water of ammonia, and enough water to produce the proper degree of dilution. The ink should be of such consistence that it will readily flow from the pen.

No. 1,791.—**Chevreuil or Chevreul?** (A. DeF.).

It appears to us now that we would have done better to adopt the spelling Chevreul, for this is the way in which the author writes his name. The latter is, of course, identical with *Chevreuil*, the French term for *roe-buck*. That the family-name has often been written Chevreuil, even by members of the family itself, there appears to be ample proof. (See *Callisen, Medic. Schriftsteller-Lexicon*, IV., 117 and 124). Modern bibliographical authorities are somewhat divided on the mode of spelling, most of them adopting Chevreul, but others write Chevreuil, so for instance the large new *Bibliographisches Lexikon der hervorragenden Aerzte aller Zeiten und Völker*, 8vo, Wien, 1884, Vol. II., page 7.

No. 1,792.—**Curd Soap** (W. H. H. C., Buffalo, N. Y.).

"Awhile back I saw a receipt in your journal for shaving-cream. It calls for 'curd soap.' Our druggists do not know what that is. Can you tell me what it is by any other name, or where it can be procured?"

In answer to the above, we quote from Ure's Dictionary the following concise statement:

"On the continent, olive oil mixed with about one-fifth of rape oil is principally used in making hard soap. This addition of rape oil is always resorted to, because olive oil alone yields a soap so hard and so compact that it dissolves only with difficulty and slowly in water, which is not the case with rape oil and other oils of a similar nature; that is to say, with oils which become thick and viscid by exposure, and which on that account are called drying oils, experience having taught that the oils which dry the soonest by exposure yield with soda a softer soap than that made with oils which, like olive oil, remain limpid for a long period under the influence of the air. The admixture of rape oil has, therefore, the effect of modifying the degree of hardness of the soap, and, consequently, of promoting its solubility. In England, tallow is used instead of olive oil, the soap resulting from its treatment with soda is known under the name of *curd soap*, and is remarkable for the extreme difficulty with which it dissolves in water. The small, white, cubic, waxy, stubborn masses which, until a few years ago, were generally met with on the washing-stands of bedrooms in hotels, and which, for an indefinite period passed on from traveller to traveller, each in turn unsuccessfully attempting, by various devices and cunning immersions in water to coax into a lather, is *curd soap*."

Any of the finer qualities of soda soap made with tallow, and as free from uncombined alkali as possible, will probably fill the bill. Possibly, white Castile Soap (Conti's) might also be used, but this is certainly not meant by "curd soap."

No 1,793.—**Paste for affixing Labels to Tin** (Subscriber).

A recent collection of practical receipts recommends the three following methods as the most effective.

1. Soak any desired quantity of glue in cold water. When it is soft, pour off the excess, add strong vinegar, and heat the mixture to boiling. About 8 parts of vinegar (of at least 6 per cent) are needed for 1 part of glue. Finally, thicken the liquid, while boiling, by the addition of a sufficient quantity of the best wheat flour.

2. Make starch paste in the usual manner, but while it is hot, add to it a little Venice turpentine, which it will take up without difficulty.

3. Coat the place where the label is to be affixed with solution of tannic acid or shellac, allow it to dry, and then affix the label, previously pasted, and moistened.

The following is recommended by Mr. H. John in the *Pharm. Zeitung*.

Coat the place with a dilute tincture of damar, allow to become almost dry, and then press upon it the label, freshly pasted with mucilage, and still what moist. Gummed labels should previously be moistened with water to render them wore flexible.

The author recommends this method for *bronzed* tin boxes. But it will also answer for bare tin.

Suppositories may be made with extracts, according to *Der Pharmaceut*, by filling the forms with melted cocoa-butter, cooling them partially and then adding to each the proper amount of extract softened with a little glycerin. The suppositories can be removed from the moulds in about five minutes thereafter, and will be found satisfactory.

Infusion of Senna is said by Leutke to be rendered much less liable to fermentation if, while it is fresh, it is rendered alkaline with bicarbonate of sodium.

A Columbus, Ohio, drug-clerk recently gave a customer a dose of castor oil in laudanum instead of whiskey. The patient detected the difference, and verified the mistake by the label on the bottle in the clerk's hand. The proper antidotes prevented any serious results.

Nitrite of Amyl was used, by a writer in *L'Union Médicale*, in the treatment of a case of opium narcosis, and its inhalation brought on a rapid cure when belladonna had failed and the patient was apparently almost beyond help.

Tribromide of Allyl, which has been known since 1857, has been found by Dr. de Fleury to be a serviceable remedy in the treatment of hysteria, infantile convulsions, angina, and asthma. The remedy may be given in capsules in doses of 5 minims, and 10 to 20 minims may be taken in twenty-four hours. It can also be used hypodermically to the extent of 2 to 4 drops dissolved in 2 cubic centimetres of ether.—*Lancet*.

Salicylated Beer.—The custom of employing salicylic acid to prevent deterioration of beer is the subject of active discussion in French journals. The quantity of the acid employed is by no means inappreciable. It is computed that the salicylated beer of Paris contains more than 20 centigrammes per liter, so that a considerable quantity is taken by a thirsty beer consumer. *The Lancet*, commenting upon this fact, says: "There are grounds for believing that the rate of elimination of the antiseptic drug is by no means rapid, and any congestion of the kidneys or liver would certainly retard its excretion in great degree. Again, we are not sure, even supposing that the substance were excreted completely, that constantly having the tissues bathed by a weak solution of salicylic acid would be unattended with danger. Salicylic acid is a member of a dangerous group of chemical bodies, the best-known of which, carbolic acid, is a most rapid and fatal poison.

Aniline Oil is being used as an anæsthetic in minor operations, such as opening a felon. The finger, having been immersed for a short time in the oil, may be cut to the bone without pain.

Spirit of Turpentine will remove unpleasant odors from the hands, when all other deodorants fail.

BIBLIOGRAPHY.

FIFTH ANNUAL REPORT OF THE ILLINOIS BOARD OF PHARMACY, with Abstract of State Pharmacy Register, 1886, pp. 184, 8vo.

THIS report might as well serve as a model, owing to the comprehensive character of its contents.

PROCEEDINGS of the Eighth Annual Meeting of the New York State Pharmaceutical Association, held in Rochester, June 8th, 9th, and 10th, 1886. Also the Constitution, By-laws, and Roll of Members. Elmira, N. Y.: Advertiser Association, printers, 1886, pp. 269, 8vo.

THIS volume is the most sumptuous of the series. The largest amount of space in the work is occupied by the minutes of the meeting, which are, indeed, rather more prolix than practical. The nineteen papers and reports are of practical value, some of them being especially so. The text of recent laws regulating the practice of pharmacy are of geat importance. A novel feature is the insertion, as a frontispiece, of a small map of the State. The whole is altogether very creditable to the secretary and printers.

PROCEEDINGS of the Pennsylvania Pharmaceutical Association at its Ninth Annual Meeting, held at Lebanon, June 8th, 9th, and 10th, 1886, with the Constitution, By-laws, Code of Ethics, and Roll of Members. Harrisburg, Pa., 1886, pp. 250 + 54, 8vo.

BESIDES the usual minutes and lists of members, etc., the volume contains a codification of resolutions, recommendations, and State laws, and, in the form of an appendix, a report by the Committee on Unofficinal Formulas, embracing one hundred and fifty-three titles. The volume will be found of value as a work for reference.

PROCEEDINGS of the North Carolina Pharmaceutical Association at its Seventh Annual Meeting, held at Fayetteville, Aug. 11th and 12th, 1886, with Constitution and By-laws, Pharmacy Laws, List of Members, and List of Registered Pharmacists in North Carolina. Statesville, N. C., 1886, pp. 128, 8vo.

THIS report shows an active interest in the promotion of pharmaceutical progress in North Carolina.

A LABORATORY GUIDE IN URINALYSIS AND TOXICOLOGY. By R. A. WITTHAUS, A.M., M.D., Prof. of Chem. and Physics in the Med. Dept. Univ. of the City of New York; Prof. of Chem. and Tox. in the Med. Dept. of the Univ. of Buffalo and in the Med. Dept. of the Univ. of Vermont; Prof. of Pharm. Chem. in the Dept. of Pharm. of the Univ. of Buffalo, etc. New York: William Wood & Co., 1886, pp. 75.

THIS manual covers very completely the range of clinical chemistry demanded by the practising physician, and is especially well-suited as a text-book for clinical students, owing to its convenient arrangement, concise statements, thorough indexing, and abundance of illustrations.

PRACTICAL AND ANALYTICAL CHEMISTRY; being a complete course in chemical analysis. By HENRY TRIMBLE, PH.G., Professor of Anal. Chem. in the Philadelphia Coll. of Pharm. Second edition, revised, enlarged, and illustrated. 8vo. Philadelphia, 1886. (P. Blakiston, Son & Co.)

WE have already given a summary of the contents of this text-book when mentioning the first edition. In its present improved shape, it will undoubtedly be a useful and practical guide for the student in the laboratory. The author has introduced several new features, one of the most useful being a systematic grouping of acids, whereby their recognition and separation is greatly facilitated.